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phenol-formaldehyde resin. At the polymerization temperature of the resin i-

ting cartridge heaters and other furnace power can be used.

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BERLIN, I. S.

G. N. Maslyanskiy and I. S. BERLIN, Catalytic Div., Cen. Sci. Res Inst of Aviation Fuels & Oils (Moscow) Co-authored "Conversion of Hydrocarbons on Alumosilicate Catalysts."

SO: Zh Obsh Khim - XVI, 10, 1946, p 1642

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CIA-RDP86-00513R000205010003-0"

BERLIN, I.Z.

BERLIN, I.Z.; MAKSIMOV, I.M., redaktor.

[Fire prevention in warehouses of metallurgical plants] Pro-tivoposharnye meropriyatiia v skladskom khoziaistve predpriatii metallurgicheskoi promyshlennosti. Moskva, Gos. nauchno-tekhn. izd-vo lit-ry po chernoi i tsvetnoi metallurgii, 1953. 191 p. (MLRA 7:8)  
(Metallurgical plants--Fires and fire prevention)

BARDYSHEV, G.M.; BERLIN, I.Z.; VAYNSHTOK, M.Z.; LEVIN, S.I.; PAVLOV, V.N.;  
PUSHKANTSEV, B.N.; SAMOCHETOV, V.F.; SEMENOV, M.G.; SOKOLOV, A.Ya.;  
KHUVES, E.S., inzh.; EMMANUEL', T.P.; GRIGOR'YEV, K.P., inzh., red.  
[deceased]; DENISENKOVA, L.M., red.; D'YACHENKO, V.M., red.; SAVEL'YEV,  
Z.A., tekhn. red.

[Technical handbook for workers in the grain-elevator industry] Tekhnicheskii spravochnik rabotnika elevatornoi promyshlennosti. Pod obshchei red. Grigor'eva K.P. i Khuvesa E.S. Moskva, Izd-vo tekhn. i ekon. lit-ry po voprosam khleboproduktov. Pt.1. 1960. 339 p. (MIRA 14:11)  
(Grain elevators)

AVERBUKH, Vladimir Leonidovich; BERLIN, Isay Zakharovich; VOLKOV,  
P.N., red.; SOVEL'YEVA, Z.A., tekhn. red.

[How to protect cereal products against radioactive,  
chemical substances, and bacterial agents] Kak zashchitit'  
khleboprodukty ot radioaktivnykh, khimicheskikh veshchestv  
i bakterial'nykh sredstv. Moskva, TsINTI, 1963. 44 p.  
(MIRA 16:12)

(Cereal products)  
(Radioactivity—Safety measures)

PERTSOVSKIY, Ye.S.; BERLIN, I.Z.; RODNEVICH, B.N.; FREYMAN, I.R.;  
LETNEV, B.Ya., red.

[Protection of cereal products from weapons of mass  
destruction] Zashchita khleboproduktov ot oruzhia massovogo  
porazheniya. Moskva, Kolos, 1964. 133 p. (MIRA 18:3)

S/194/62/000/006/023/232  
D413/D308

AUTHORS: Berlin, K., and Vels, Zh.

TITLE: The application of modern electronic computers, with programming theory, in analyzing the economics of petroleum processing (Summary)

PERIODICAL: Referativnyy zhurnal. Avtomatika i radioelektronika, no. 6, 1962, abstract 6-1-134 m (V sb. 5-y Mezhdunar. neft. kongress, 1959, T.Z., M., Gostoptekh-izdat, 1961, 212-213)

TEXT: An analog computer is used to determine optimum conditions for the processing of petroleum. Programs have been worked out that are capable of allowing for all possible compositions of the raw material and finished products and for the technical equipment of the plant. The paper gives details of the program, the forms of working tables, and practical problems in the simulation of individual installations and of the plant as a whole. [Abstracter's note: Complete translation.] ✓

Card 1/1

BERLIN, L.B.

Reparative regeneration of the epidermis in reptiles. Doklady Akad.  
nauk 86 no. 4:829-832 1 Oct 1952. (CLML 23:3)

1. Presented by Academician N. N. Anichkov 25 July 1952.
2. Military Medical Academy imeni S. M. Kirov.

*Berlin, L.B.*

USER/ Medicine - Histology

Card 1/1            Pub. 22 - 43/52  
Authors : Berlin, L. B.  
Title : Histological changes in the epidermis of a frog during reparative regeneration  
Periodical : Dok. AN SSSR 100/2, 361-364, Jan 11, 1955  
Abstract : Experiments were conducted on adult frogs (*Rana temporaria* L.) to determine the histological changes in damaged epidermis during the process of reparative regeneration. The results of the healing process are described. Twelve references: 11 USSR and 1 German (1930-1952). Illustrations.  
Institution : The S. M. Kirov Military-Medical Academy  
Presented by : Academician N. N. Anichkov, September 23, 1954

BERLIN, L. B.

USSR/ Medicine - Histology

Card 1/1 Pub. 22 - 41/46

Authors : Berlin, L. B., and Shalumovich, V. N.

Title : Study of the skin of a frog and especially its glands by means of luminescent and ultraviolet microscopy and certain histochemical methods

Periodical : Dok. AN SSSR 103/1, 153-155, Jul 1, 1955

Abstract : The characteristics of frog skin and especially the characteristics of its glands were investigated by means of luminescent and ultraviolet microscopy and by some other histochemical methods. Results are described. Seven references: 4 USSR, 2 Germ. and 1 Scand. (1846 and 1847). Illustrations.

Institution : Military-Medical Academy im. S. M. Kirov

Presented by: Academician Ye. N. Pavlovskiy, March 5, 1955

BERLIN, L.B., SHALUMOVICH, V.M.

Luminescent and ultraviolet microscopy in the histological study  
of the skin and its glands in the axoletl. Dekl. AN SSSR 105  
no. 4:824-827 D '55. (MLRA 9:3)

1. Veyenne-meditsinskaya akademiya imeni S.M. Kirova. Pred-  
stavlene akademikom Ye.N. Pavlovskim.  
(Axoletl) (Skin)

KHLOPIN, N.G.,; SHIVCHENKO, N.A.,; HERLIN, L.B.

Histological changes in the skin following injury in rabbit;  
preliminary report. Biul. eksp. biol. i med. 41 no.2:61-64 F '56.

(MLRA 9:6)

1. Iz Voyenno-meditsinskoy ordena Lenina akademii imeni S.M. Kirova.  
(SKIN, pathology,  
histol. changes in lesions induced by subcutaneous  
inject. in rabbits (Rus))

*Dokl Akad Nauk SSSR*, 107, No. 6, 1955, p. 1315  
Histological study of epidermis of lamprey by methods of luminescent, ultraviolet, and dark field microscopy  
B. Berlin and V. N. Shulmanovich (S. M. Krasnaya) *Dokl Akad Nauk SSSR*, 107, No. 6, 1955, p. 1315  
Abstract: A detailed description is given of the structure of the epidermis of *Lampetra fluviatilis* after fixation with formalin. In the cells of the outermost sheath the baseophilic cytoplasm absorbs strongly at 256-80 m $\mu$ . The bulb-formed cells in the deeper epidermis show intense absorption at 256-80 m $\mu$  in the nuclei and extracellular threads. Intense absorption in this region is found in cytoplasm and nuclei of the granular cells. The secretion of the mucous cells does not absorb in ultraviolet and has a brown luminescence. The granular cells produce a lipid secretion, while the mucous cells produce a mucous secretion which is unlike that produced by fish, in general, and amphibia. G. M. Kosakapoff

USSR / Human and Animal Morphology (Normal and Patho- S-5  
logical). Blood-Vascular System. Vessels.

Abs Jour: Ref Zhur-Biol., No 17, 1958, 79157.

Author : Berlin, L. B.

Inst : Not given.

Title : Changes of the Endothelium of the Skin Vessels  
Under the Influence of Nourishment of Pastoral  
(Ixodoidea) Ticks.

Orig Pub: Dokl. AN SSSR, 1958; 109, No 4, 859-861.

Abstract: Tests were carried out on rabbits (16) and guinea pigs (15), in the skin of which up to 100 Hyalomma asiaticum ticks were planted. The skin together with the ticks was fixed after different periods (1-60 days). Histological study showed that the changes in the vessels begin with the endothelium and were observed not only

Card 1/2

USSR / Human and Animal Morphology (Normal and Pathological). Blood-Vascular System. Vessels. S-5

Abs Jour: Ref Zhur-Biol., No 17, 1958, 79157.

Abstract: in the veins but also in other vessels. They are characterized by proliferation and thickening of the endothelium, by its growth into the lumen of the vessel and into the inside of the wall, and by the appearance of thrombi in the lymph and venal vessels. Changes in the skin vessels caused by the mechanical damage and toxic action of the ticks were preserved for 3-4 weeks.

Card 2/2

**BERLIN, L.B.**

Changes in the striated muscular fibers of the skin in *Hyalomma asiaticum* P.Sch. et B.Schl. (Ixodiidae) due to variations in feeding.  
Dokl.AN SSSR 111 no.6:1348-1351 D '56. (MIRA 10:3)

1. Voyenno-meditsinskaya akademiya imeni S.M. Kirova. Predstavлено  
akademikom Ye.N. Pavlovskim.  
(TICKS)

~~BERLIN, L.B.~~

~~BERLIN, L.B. (Leningrad, P-10, Primorskiy pr., d.39, kv.3); SHALUMOVICH, V.N.~~  
~~(Leningrad, K-44, pr. Karla Marksa, d.56, kv.50)~~

Study of the glandular components of the skin in lower vertebrates using luminescence, ultraviolet, and spectral microscopy and some histochemical methods [with summary in English]. *Arkh.anat.gist. i embr.* 34 no.4:46-53 Jl-Ag '57.  
(MIRA 10:11)

1. Iz kafedry gistolozii s embriologiey (nach. - deystvitel'nyy chlen AMN SSSR prof. N.G.Khlopin) v ojennno-meditsinskoy ordena Lenina akademii im. S.M.Kirova.

(SKIN, anatomy and histology,  
glandular components in lower vertebrates (Rus))

USSR / Human and Animal Morphology, Normal and Pathological.  
Cutaneous Integument.

S-6

Abs Jour : Ref Zhur - Biol., No 16, 1958, No 83772  
Author : Berlin, L. B.  
Inst : AS USSR  
Title : Histological Changes in the Skin of Rabbits and Guinea pigs  
Provoked by the Feeding upon them of Ticks Hyalomma  
Asiaticum P. Sch. et E. Schl. (of the Ixodidae family).

Orig Pub : Dokl. AN SSSR, 1957, 112, No 2, 340-343

Abstract : 12 rabbits and 13 guinea pigs were subjected to experiments. The feeding of the ticks was carried out by the tube-gluing method with the subsequent histological study of skin sectors in varying periods. Upon a bite by a tick, dystrophic and necrobiotic processes spread deeply into the dense part of the skin. Layers of dead epithelium and connective tissue form around the oral parts. Because of the change in the

Card 1/2

AUTHOR  
TITLE

BERLIN L.B.

20-4-52/61

The histological structure of transplants of human skin,  
obtained with the aid of a dermatome.  
(Gistologicheskoye stroyeniye transplantov kozhi cheloveka,  
poluchennykh s pomoshch'yu dermatoma.- Russian)  
Doklady Akademii Nauk SSSR 1957, Vol 113, Nr 4, pp 909-912  
(U.S.S.R.)

PERIODICAL

Received: 6/1957

Reviewed: 7/1957

ABSTRACT

In recent years free transplantation of larger pieces of  
human skin debris obtained with the aid of a dermatome has  
more and more been used in plastic surgery. The method is  
recommended in the case of injuries covering large surfaces,  
especially for the curing of burns. There is, however, in  
not the slightest indication surgical publications as to the  
histological structure of these skin debris, or on the com-  
ponents getting into the transplant when it is cut off. Ac-  
cording to individual indications large surfaces of viable  
epidermic cells must remain with the skin donor. As material  
15 main transplants from the front thigh surface, more rarely  
from the hind parts of the body served. The knife of the  
dermatom was adjusted to a cutting thickness of 0,3 - 0,5 mm.  
The thickness in preparations turned out to be 120-150  $\mu$  up  
to 600-700 on the average 350 - 500  $\mu$ . The epidermis was

CARD 1/4

20-4-52/61

The histological structure of transplants of human skin,  
obtained with the aid of a dermatome.

completely included, further the mammulae layer below it and partly also the omentum layer. The epidermis has a thickness of at least  $50\mu$  and of  $200\mu$  at the most, but mostly of  $70 - 100\mu$ . It consists of three layers: the germinal-, granulen- and corny layer. Its histological and cytological structures are explicitly described and illustrated. The boundary between epidermis and derma is undulated and in some parts almost even. Elastic fibres extend from the mammulae layer of the derma toward the basal membrane, which disappears in the membrane. The fibrous part of transplants has a maximum thickness of  $680\mu$  and a minimum thickness of  $60\mu$ , mostly, however, of  $200-400\mu$ , thickness of the transplant is, in principle, determined by the level of the cutting off of the derma. Here too the finer structure is more explicitly described. The surface of the transplant, which later has to contact with the recipient surface appears to be not seriously injured when cut off and apparently contains many viable cells. In the fibrous part a close net of blood vessels develops. In it numerous capillaries are created which invade the mammulae. Lymphitic vessels could not be identified by the author. Nerve fibres were not too rarely seen. The following

CARD 2/4

20-4-52/61

The histological structure of transplants of human skin, obtained with the aid of a dermatome.

pieces of skin were in a transplant of 0,3 - 0,5 mm thickness: Surface parts of hair, orifices of perspiration glands, sometimes the more superficial parts of sebaceous glands, rarely the complete hair follicles or sebaceous glands themselves. From a histological and not less from a practical point of view epithelialization of the donor is of interest. The parts remaining here can be judged from the composition of the transplant. The viable cells of the pieces of skin apparently form the only source of epithelialization of the donor. This is confirmed by some indications, though not numerous, concerning the considerable proliferative possibilities of viable epithelial elements of skin appendices in the case of mammals and human beings. Complete epithelialization sets in after 3-4 weeks according to the thickness of the layer of skin cut off. No data on the histology of these processes are given. It would be interesting to bring light also into those processes

CARD 3/4

The histological structure of transplants of human skin,  
obtained with the aid of a dermatome. 20-4-52/61

which take place during the healing or non-healing process  
between the transplant and the recipient part.  
(14 citations from Slavic publications, 3 Illustrations, 1  
Table.)

ASSOCIATION: Military Medical Academy "M.V. Kirov".  
PRESENTED BY: E.N. PAVLOVSKIY, Member of the Academy.  
SUBMITTED: 29.12. 1956.  
AVAILABLE: Library of Congress.

CARD 4/4

Berlin, L. B.

AUTHOR: Berlin, L. B.

20-4-47/60

TITLE: Histological Processes that Take Place in the Course of the Healing of Closed up Operational Wounds in Dogs and Cats (Gistologicheskiye protsessy pri zazhivlenii zashitykh operatsionnykh ran u sobak i koshak).

PERIODICAL: Doklady AN SSSR, 1957, Vol. 115, Nr 4, pp. 799-802 (USSR.).

ABSTRACT: A series of works (old and new) is dedicated to the wound healing of dogs. The present work aims at filling the gap that remained due to negligence of the histological changes and correlations of the skin tissue components by former authors. A closed up operational wound cannot lack specific since it heals due to primary tension. Moreover the study of the epidermal tissue of various vertebrate animals shall be continued. Pieces of skin of dogs and cats cut out from the domain of operation wounds and sewn aseptically into the animals served as material: In the case of the dogs they were sewn in at the ventral side of the neck and at the inner part of the femur; in the case of the dogs at the abdomen. Moreover the method of fixation, colouring, and the structure of the epidermis with normal animals is described. The regeneration processes, as they can be observed in the histological structure of the tissue around

Card 1/3

Histological Processes that Take Place in the  
Course of the Healing of Closed up Operational Wounds in Dogs and Cats.

20-4-47/60

the wound are described in detail in the single stages of healing. At those part of the wound where the margins diverged considerably, the epidermal regenerate entered deeply into the gap-like cavity and gradually lined its margins. Single wound sections were epithelialized after different periods of time, in the case of cats somewhat faster than with dogs. However, also in the case of the dogs epithelialization was completed after 9 days. The epidermis surrounding the wound remains for a long time bulbous until the complete epithelialization. The data of Kedrovskiy on the accumulation of ribonucleinate in the cytoplasm of the cells on the occasion of regeneration are here confirmed. It is striking that the nucleoli even after the processing with ribonuclease remain basophile and can be coloured intensively with azure (fig. 4). Apparently they also contain desoxyribonucleic acid (thymonucleic acid). No hairs and glands are present in the healing torus. Inspite of considerable similarity between the histological processes in the course of the healing of closed up wounds with dogs and cats the following differences could be observed: cats: accelerated epithelialization, greater rôle of the epithelial elements of the hair sheath on the occasion of the formation of the "repair" layer in the zone of the contraction of the skin

Card 2/3

Histological Processes that Take Place in the Course of the Healing 20-4-47/60  
of Closed up Operational Wounds in Dogs and Cats.

by the suture, as well as in the regenerate itself, especially strong  
dilation of the lymphatic vessels lined by cubiform endothelium.  
There are 3 figures, and 2 Slavic references.

ASSOCIATION: Academy for Military Medicine im.S.M.Kirov (Voyenno-meditsinskaya  
akademiya imeni S. M. Kirova).

PRESENTED: By I. I. Shmal'gauzen, Academician, May 10, 1957

SUBMITTED: May 5, 1957.

AVAILABLE: Library of Congress.

Card 3/3

AUTHOR: Berlin, L. B. SOV/20-122-2-38/42

TITLE: Histological Modifications Occurring in the Human Epidermis Subjected to Autoplasty (Gistologicheskiye izmeneniya epi-dermisa cheloveka pri autoplastike)

PERIODICAL: Doklady Akademii nauk SSSR, 1958, Vol 122, Nr 2, pp 300-303 (USSR)

ABSTRACT: The transplantation of great flaps of skin which are detached by the dermatom is more and more established in surgery practice, in particular in the treatment of large burns (Refs 1 - 6). Little effort has hitherto been made to investigate the skin modifications in question as well as the transplantates (Refs 7 - 10). The author tried to clarify the morphological peculiarities of human skin tissue, primarily of the epidermis, under conditions of transplantation and regeneration. This was to be compared with similar processes in various vertebrates (Refs 11 - 18). Parts of skin, 2 x 0,5 x x 0,5 cm in size were studied. They contained the edges of the transplantate and the bordering margin of the burn. (B. S. Vikhriyev, I. I. Glumov, N. V. Gudim-Levkovich and A. N. Orlov assisted in furnishing samples). The individual

Card 1/3

SOV/20-122-2-33/42

Histological Modifications Occurring in the Human Epidermis Subjected to Autoplasty

stages developing in the days after the operation are described (Figs 1 - 4). The transplanted skin does not regain the appearance of a normal skin even after from 5 to 10 days after operation. Neither its appendages were restored nor appeared the normal undulating course of the boundary between the epithelium and the connective tissue and the characteristic sub-division of the derma in layers. The epidermis, however, becomes similar to the epithelium of undamaged skin across the whole transplantation section investigated. Perforations are very important in a successful healing on of skin flaps. In these places already in the first week after autoplasty the most active proliferation processes proceed. The epithelium on the contrary is destroyed for a great part between the perforations. The closest contact between the underlying tissue and the growing epithelial layer is established primarily at the perforations. The metabolism of the transplanted skin is disturbed for a longer period. This is shown, among other circumstances, also by a similarity found between the epithelium in the transplantate with the epidermis the innervation of which was interrupted. There are 4 figures and 26 references; 21 of which are Soviet.

Card 2/3

SOV/20-122-2-38/42

Histological Modifications Occurring in the Human Epidermis Subjected to  
Autoplasty

ASSOCIATION: Voyenno-meditsinskaya akademiya im. S. M. Kirova  
(Military-Medical Academy imeni S. M. Kirov)

PRESENTED: April 28, 1958, by I. I. Shmal'gauzen, Member, Academy of  
Sciences, USSR

SUBMITTED: April 27, 1958

Card 3/3

1.7(1)

AUTHOR:

Berlin, L. B.

SOV/20-123-1-48/50

TITLE:

A Histochemical Investigation of Glycogen in Human Skin in  
the Process of Regeneration and Autotransplantation  
(Gistokhimicheskoye izuchenie glikogena v kozhe cheloveka  
pri regeneratsii i autotransplantatsii)

PERIODICAL:

Doklady Akademii nauk SSSR, 1958, Vol 123, Nr 1, pp 179 -  
181 (USSR)

ABSTRACT:

Data to be found in the literature, concerning the changes  
of carbohydrates in the skin in wound healing, transplanting  
and other proliferative processes are very fragmentary (Refs  
1, 2). It is impossible to get a somewhat complete idea of  
glycogen localization from these data, let alone the determina-  
tion of other carbohydrates. Very recent data suggest (Refs  
3, 4) that there is also in human epidermis a systematic  
change of glycogen in autotransplantation and regeneration  
that can be demonstrated. Pieces of human skin served as  
test material, which were cut off by means of a dermatome  
(Ref 6) and which were destined for autoplastic grafting  
after large burns of the 3rd degree. Small pieces of skin  
were removed 6 - 70 days after grafting by means of biopsy

Card 1/4

A Histochemical Investigation of Glycogen in  
Human Skin in the Process of Regeneration and  
Autotransplantation

SOV/20-123-1-48/56

(Biopsiya) or autopsy. Skin pieces from 37 patients were tested, which included both pieces of the auto-graft as well as of the surrounding regenerating skin at the edges of the burns. They had been perforated before transplanting by which a number of small wounds were created in the graft and consequently also numerous foci of regeneration. Thus it was possible to study glycogen histochemically not only in the graft, but also in the regenerating skin. The pieces of skin which had been cut off by a dermatome did not show any content of glycogen in the epidermis and the epithelial portions. In the proliferating epithelium, under conditions both of regeneration and of transplantation, a considerable quantity of systematically localized glycogen inclusions can be found. The author describes the epidermal product of regeneration and the skin graft in detail (Figs 1 - 3). The observations made in the histochemical glycogen changes during regeneration an autotransplantation of human skin showed that, under conditions of proliferation of the epidermis and consequently of a higher metabolism, an increased consumption

Card 2/4

A Histochemical Investigation of Glycogen in  
Human Skin in the Process of Regeneration and  
Autotransplantation

SOV/20-123-1-48/56

of glycogen, as could be expected, occurs by way of glycogenolysis (Ref 4). Glycogen resynthesis, however, proved to be excessive. It can, therefore, be found in large quantities in the epidermis and in smaller quantities also in the connective tissue. As the intensity of the exchange process in the skin decreases in later stages of regeneration and in the grafts, the glycogen consumption will probably be reduced. The shortage of glycogen in preparations of normal skin and in later stages of transplantation (Ref 2) or at the beginning of regeneration suggests that glycogen resynthesis takes place less intensively in such cases and only covers consumption. There are 3 figures and 20 references, 18 of which are Soviet.

ASSOCIATION:

Voyenno-meditsinskaya akademiya im. S. M. Kirova (Academy of Military Medicine imeni S. M. Kirov)

PRESENTED:  
Card 3/4

June 30, 1958, by N. N. Anichkov, Academician

BERLIN, L.B. (Leningrad, P-10, Primorskiy prosp., d.39, kv.3)

Autotransplantation of skin in man; histological and luminescence-microscopic investigations. Arkh.anat.gist.i embr. 37 no.8: 47-55 Ag '59. (MIRA 12:11)

1. Kafedra gistologi i embriologiyey (nach. - chlen-korrespondent AMN SSSR prof.S.I.Schelkunov) i kafedra gospital'noy khirurgii (nach. - prof.I.S.Kolesnikov) Voyenno-meditsinskoy ordena Lenina akademii im. S.K.Kirova.

(SKIN TRANSPLANTATION)

17(1)

AUTHOR: Berlin, L. B. SOV/20-127-4-48/60

TITLE: Histological Changes of the Epidermis of a Sucking Pig After Extensive Burns of the III Degree

PERIODICAL: Doklady Akademii nauk SSSR, 1959, Vol 127, Nr 4, pp 896-899 (USSR)

ABSTRACT: The data published on the healing of the burns mentioned in the title are fragmentary. The present investigation may contribute to the solution of several practical problems because of the similarity of the clinical picture to that of burns of human beings. It is important to compare the results obtained with those obtained with man and experimental animals (including the healing of mechanical injuries (Refs 1-9)). This comparison is supposed to show the characteristics of the epidermis of the sucking pig. Small pieces of skin ( $2.5 \times 0.5 \times 0.5$  cm) from the periphery of the burn were used. The burns were caused by lighting a piece of cotton fabric saturated with gasoline on the skin of one side of the body (V.M. Burmistrov, V. G. Slinko, Mrs. R. A. Strugach, and K. I. Shumikhina participated). Then the singed skin was infected by a meat gravy culture of Streptococcus hemolyticus,

Card 1/3

Histological Changes of the Epidermis of a Sucking Pig After Extensive Burns of the III Degree SOV/20-127-4-48/60

strain 434, and by a 24-hour-old agar culture of *Staphylococcus aureus*, strain 209. The material was taken out during the biopsy or, more rarely, during an autopsy after 0 hours to 53 days. The epidermis shows considerable changes after the burning. Over a considerable area it is detached from the derm but the basal membrane remains attached to the connective tissue. A detailed description of the changes in the course of the healing (Figs 1-4) follows. Upon comparison of the above changes of epidermis of the sucking pig with the reparative regeneration of epidermis in the case of mechanical injuries of experimental animals (Refs 5,7,8,11,12) and human beings (Refs 6,13) certain peculiarities appear in addition to a certain similarity. They depend mainly on the extension of the injury, the different intensity in the peripheral and central parts of the burn, the long-lasting presence of the necrotic tissue, and probably, the infection of the wound. These peculiarities cause the dominating role of the epithelium of the skin appendices and the formation of a new epidermal envelope. This leads to the formation of regeneration products at several places; initially, the epithelialization

Card 2/3

Histological Changes of the Epidermis of a Sucking Pig After Extensive Burns of the III Degree SOV/20-127-4-48/60

of the wavy surface of the former derm leads to a "melting away" of the epithelium between the papillae; a uniform epithelial layer is formed later; the epithelium of the regeneration product forms thick exuberances. The latter, however, proves unable to epithelize the whole wound even over a long period of time. This is caused by the pronounced processes of scar formation in the central parts of the wound where the burns were especially deep. There are 4 figures and 14 references, 10 of which are Soviet.

ASSOCIATION: Voyenno-meditsinskaya akademiya im. S. M. Kirova (Military-medical Academy imeni S. M. Kirov)  
PRESENTED: April 16, 1959, by N. N. Anichkov, Academician  
SUBMITTED: April 14, 1959

Card 3/3

17(4)

AUTHOR:

Berlin, L. B.

SOV/20-128..3-50/58

TITLE:

Histological Changes in the Skin of a Sucking Pig in Autoplasty

PERIODICAL:

Doklady Akademii nauk SSSR, 1959, Vol 128, Nr 3, pp 614-617  
(USSR)

ABSTRACT:

In healing burnings of 3rd degree (Refs 1-5), autoplastic transplantsations of large skin flaps have recently been used with success since the healing of large burnings without a surgical operation is much retarded (Ref 4). The author studied the changes of autotransplants and the surrounding skin in a sucking pig, the skin of which is much more similar to human skin than that of other experimental animals. The pictures obtained were to be compared with the results obtained with another material (Refs 6, 8-19). Histological changes in the sucking pig have been insufficiently investigated (Refs 6, 7), while no histochemical data could be found in available publications. The material was supplied by V. M. Burmistrov and V. G. Slinko. It consisted of skin pieces  $2 \times 0.5 \times 0.5$  cm large, which comprised the marginal area of the transplant and the adjoining border of the burn. The burn was made with an open flame 4 days before the transplantation, and included 10-13% of the body

Card 1/3

Histological Changes in the Skin of a Sucking Pig in SOV/20-128-3-50/58  
Autoplasty

surface. A biopsy was carried out on the 1st - 39th days after transplantation. The burn was infiltrated - immediately after burning - with 24-hour old meat-broth cultures of Streptococcus haemolyticus, stem 434, and Staphylococcus aureus, stem 205 (2-billion suspension, 5 ml). The author describes in detail the changes of the skin flap cut off by means of a dermatome, perforated and autotransplanted after 5 days. Before the burning and before the operation, the animals got an injection of 10% thiopental solution (0.5 ml per 1 kg live weight). Figures 1-3 show photographs of preparations 9-14 days after the operation, near and far from perforations. The author concludes from his results that in the above-mentioned skin autoplasties of infected burnings of 3rd degree no recovery of the skin as an organ takes place, even at the latest of the observed points of time. This is proved by the complete absence of hair and glands on the healed transplant, as well as of the usual wavy course of the

Card 2/3

Morphological Changes in the Skin of a Sucking Pig in  
Autoplasty SOV/20-128-3-50/58

border between epithelium and the underlying connective tissue.  
Neither is the derma, as usual, differentiated into a ccne- and  
a reticular layer. There are 3 figures and 24 references,  
16 of which are Soviet.

ASSOCIATION: Voyenno-meditsinskaya akademiya im. S. M. Kirova  
(Military Medical Academy imeni S. M. Kirov)

PRESENTED: June 9, 1959, by N. N. Anichkov, Academician

SUBMITTED: June 3, 1959

Card 3/3

"APPROVED FOR RELEASE: 06/08/2000

CIA-RDP86-00513R000205010003-0

BERLIN, L.B.

Healing of skin autotransplants in man. Vest.Khir. 84 no.6:44-48  
Je '60. (MIRA 13:12)

(SKIN GRAFTING)

APPROVED FOR RELEASE: 06/08/2000

CIA-RDP86-00513R000205010003-0"

BERLIN, L.B.

Histological changes in the skin of baby pigs following homotransplantation after burns. Dokl. AN SSSR 134 no.5:1252-1255 O '60.  
(MIRA 13:10)

1. Voyenno-meditsinskaya akademiya im. S.M.Kirova. Predstavleno  
akademikom N.N.Anichkovym.  
(Skin grafting) (Homografts)

BERLIN, L.B., NEZDATNYY, M.M.

Histological processes during homografts of preserved rabbit skin.  
Dokl.AN SSSR 138 no.3:706-709 My '61. (MIRA 14:5)

1. Voyenno-meditsinskaya akademiya im. S.M.Kirova. Predstavлено  
академиком N.N.Anichkovym.  
(HOMOGRAFTS) (SKIN GRAFTING)

BERLIN, L.B. (Leningrad, P-10, Primorskiy pr., 39, kv.3)

Histological changes in the epidermis after extensive burns  
in acute radiation sickness. Arkh. anat., gist. i embr.  
42 no.4:53-58 Ap '62. (MIRA 15:6)

1. Voyenno-meditsinskaya ordena Lenina akademiya imeni  
S.M. Kirova (nauchnyy rukovoditel' - I.A. Chalisov).  
(RADIATION SICKNESS) (EPIDERMIS)  
(BURNS AND SCALDS)

35674

S/020/62/143/001/029/030  
B144/B1017.12.20  
AUTHOR:Berlin, L. B.

TITLE:

Effect of small doses of ionizing radiations and cystamine on the mitotic activity of the epithelia of cornea and duodenal crypts

PERIODICAL: Akademiya nauk SSSR. Doklady, v. 143, no. 1, 1962, 218-220

TEXT: Effects of cystamine and small radiation doses were studied in three test series of white rats by comparing the number of mitotic cells in the epithelia of the cornea (EC) and the duodenal crypts (EDC). (1) Intra-peritoneal administration of 60 mg/kg cystamine produced a drop to  $24 \pm 2.0$  after 1 hr, then an increase to normal values lasting for 20 hrs, followed by a sharp rise to  $149 \pm 13.1$  to  $189 \pm 23.9$  lasting for the remaining 6 days of observation. (2) 5 hrs irradiation with  $\text{Co}^{60}$ , 0.21 r/min, led in EC to reduction of mitosis from  $150 \pm 13.0$  to  $107 \pm 6.5$  after 1 hr, followed by a rise to about 210 after 3 hrs, a second drop to  $95 \pm 17.2$  after 8 hrs and a sharp rise ( $289 \pm 31.5$ ) after 20 hrs lasting for some days. (3) Administration of cystamine before irradiation resulted

X

Card 1/2

40285

8/020/62/146/001/016/016  
B144/B101

27.2400

AUTHORS

Berlin, L. B., Zhupan, V. F.

TITLE:

Histological changes in skin grafts on burns in irradiated rabbits

PERIODICAL: Akademiya nauk SSSR. Doklady, v. 146, no. 1, 1962, 242 - 245

TEXT: The effect of daily intramuscular cortisone doses of 1.0 mg/kg upon homografts was studied in 60 rabbits irradiated with a single dose of 600 r, burned on the same day with water at 83°C on the inner surface of the ear, and subjected to a general treatment of their radiation disease. The healing process was observed up to 47 days after homografting in different stages of acute radiation disease: 1) latent stage; 2) peak; 3) recovery. 1) The graft was viable throughout the 30 days of observation and finally showed multiple strands of connective tissue and endothelial proliferations. 2) The epidermis perished, the connective tissue remained viable throughout the 45 days of observation. The inflammation spreaded to the cartilage, where destructive as well as proliferative processes were observed. In the final period, either marginal necroses were found under which the

Card 1/2

Histological changes in skin ...

S/020/62/146/001/016/016  
B144/B101

recipient epithelium had grown, or the recipient epithelium had grown continuously into the epidermis of the homograft. 3) Protracted inflammation owing to trauma, decaying tissue, and secondary infection. Part of the cartilage was necrotic, but other parts showed growth by apposition or intercalar growth. Throughout the 47 days of observation the flap was viable. No distinct boundary was observed between the bottom layers of the flap and the cicatricial granulation tissue of the recipient. In previous studies (DAN, 138, no. 3, 706 (1961)) without administration of cortisone the grafts had perished after 12 - 15 days. There are 2 figures.

ASSOCIATION: Voyenno-meditsinskaya akademiya im. S. M. Kirova (Military Medical Academy imeni S. M. Kirov)

PRESENTED: March 15, 1962, by N. N. Anichkov, Academician

SUBMITTED: March 12, 1962

Card 2/2

BERLIN, L.B.; KAMENSKAYA, N.L.

Histologic changes in chicken epidermis in reparative regeneration.  
Dokl. AN SSSR 149 no.2:428-430 Mr '63. (MIRA 16:3)

1. Voyenno-meditsinskaya akademiya im. S.M.Kirova. Predstavлено  
академиком N.N.Anichkovym.  
(Epidermis) (Regeneration (Biology))

BERLIN, L.B., dotsent

Histological changes in the human skin after thermal burns.  
Vest. derm. i ven. 37 no.1:10-15 Ja'63. (MIRA 16:10)

1. Iz Voyenno-meditsinskoy ordena Lenina akademii imeni  
S.M.Kirova. (BURNS AND SCALDS)

BERLIN, L.B.; PEREGUDOV, I.G.

Some histological changes in the skin during homoplasty and cortisone therapy in healthy and irradiated rabbits. Biul. eksp. biol. i med. 55 no.2:116-120 F'63. (MIRA 16:6)

1. Iz kafedry obshchey khirurgii (nachal'nik - prof. V.I. Popov) Voyenno-meditsinskoy ordena Lenina akademii imeni S.M. Kirova. Predstavlena deystvitel'nym chlenom AMN SSSR I.P. Pechovym.  
(RADIATION--PHYSIOLOGICAL EFFECT) (HOMOGRAFTS)  
(CORTISONE)

L 18965-63 EWT(1)/EWT(m)/BDS/ES(3) AMD/AFFTC/ASD AR/K

ACCESSION NR: AP3006602

5/0020/63/151/006/1450/1452

58

57

AUTHORS: Chalisov, I. A.; Berlin, L. B.

TITLE: Regenerative processes in the mucous membranes of the duodenum after radiation damage<sup>19</sup>

SOURCE: AN SSSR. Doklady\*, v. 151, no. 6, 1963, 1450-1452

TOPIC TAGS: radiation damage, radiation sickness, radioactive cobalt, tissue regeneration, organ regeneration, duodenum, intestinal mucosa

ABSTRACT: Changes in the duodenal mucosa of 111 white rats were studied immediately after exposure to systemic Co sup 60 irradiation (900 r in 3 hours) and 15 days later. Hematologic studies were performed to assess the degree of radiation damage. Stained sections of duodenal mucosa obtained on the day after irradiation were normal in appearance, but mitotic activity was markedly depressed (mitotic index 0.05%, as compared to the normal 5.4%). There was a concomitant 50% decrease in the number of leukocytes in the peripheral blood and of nucleated cells in the bone marrow. The mitotic index rose after the first few days, but only to 1%, and the peripheral leukocytes and medullary nucleated cells were still

1/82

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L 18965-63

ACCESSION NR: AP3006602

1/6 to 1/8 the normal numbers. The cytoplasm of the cells of the epithelium of the crypt and their lumina contained pyronine-staining, Feulgen-positive granules derived from cell disintegration. Destructive processes were conspicuous from the second day on, with resultant loss of the entire epithelial lining of the duodenum, an inflammatory process in the corresponding mucous membrane, marked leukopenia and total destruction of the mucosa, with temporary disappearance of the villi. Regeneration began on the third day: the ribonucleoprotein content increased and crypt cell mitotic activity rose from 2 to 5.7% within this 24-hour period. Foci of regeneration appeared and ultimately fused to re-line the mucosa with epithelium, and villi--at first shorter and broader than normal--began to re-appear. By day 7-10, the crypts and villi were normal in appearance and structure. The period of intensive regeneration coincided with the onset of the most severe phase of acute radiation sickness, marked by hemorrhaging, maximal depression of hematopoiesis, and the death of 50% of the rats on days 11-14. Thus successful tissue, and even organ, regeneration may take place despite severe radiation damage. Orig. art. has: 4 figures.

ASSN: Academy of Military Medicine.

Card

2/32

CHALISOV, I.A.; BERLIN, L.B.

Restorative processes in the mucous membrane of the duodenum after  
a radiation injury. Dokl. AN SSSR 151 no.6:1450-1452 Ag '63.  
(MIRA 16:10)

1. Vojenno-meditsinskaya akademiya im. S.M.Kirova. Predstavлено  
akademikom N.N.Anichkovym.

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CIA-RDP86-00513R000205010003-0

APPROVED FOR RELEASE: 06/08/2000

CIA-RDP86-00513R000205010003-0"

PRIDVIZHIN, I.G.; BERLIN, L.B.

Embryonic histogenesis of the epidermis and its derivatives.  
Dokl. AN SSSR 158 no.1:199-201 S-0 '64 (MIRA 17:8)

1. Leningradskiy pediatricheskiy meditsinskiy institut. Pred-  
stavлено akademikom Ye. N. Pavlovskim.

"APPROVED FOR RELEASE: 06/08/2000

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lytic effect of cystamine were studied. The results demonstrated that the principle

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APPROVED FOR RELEASE: 06/08/2000

CIA-RDP86-00513R000205010003-0"

BERLIN, L.B.; PRIDVI?HKIN, I.G.

Histochemical study of glycogen in the skin of the human embryo.  
Dokl. AN SSSR 160 no.1:213-215 Ja '65.

(MIRA 18:2)

1. Leningradskiy pediatricheskiy meditsinskiy institut. Submitted  
May 8, 1964.

BERLIN, L.B., dotsent (Leningrad P-10, Primorskiy prospekt, d.39, kv.3)

Changes in the skin following thermal burns; a review of literature.  
Ortop., travm. i protez. 26 no.2:75-82 F '65. (MIRA 18:5)

"APPROVED FOR RELEASE: 06/08/2000

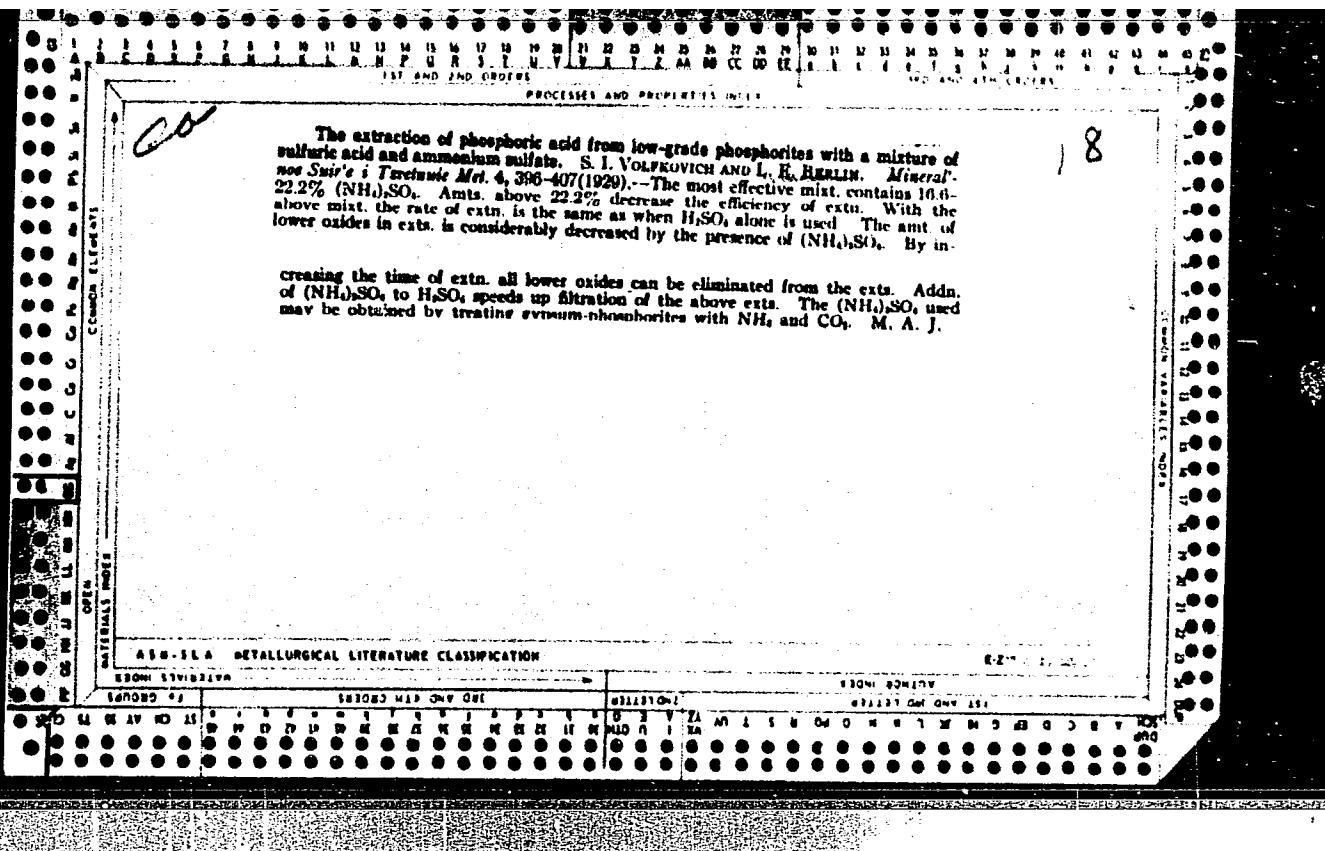
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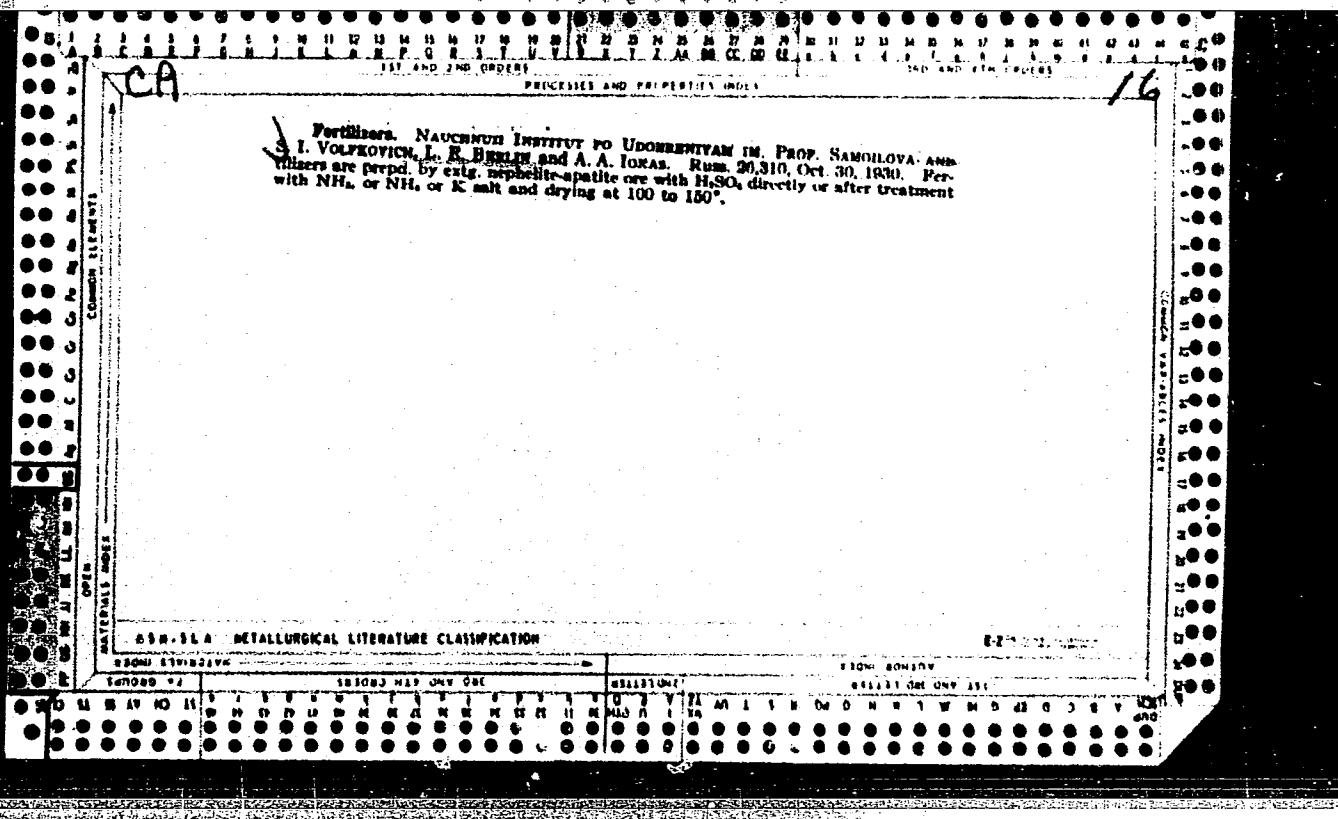
AEROV, M.E.; BOYARCHUK, P.G.; SVISTUNOV, V.G.; BERLIN, L.F.;  
BORODULIN, A.A.

Hydraulic study of two-downcomer rectification plates. Khim.  
i tekhn. topl. i masel 8 no.5:47-51 My '63. (MIRA 16:8)

APPROVED FOR RELEASE: 06/08/2000

CIA-RDP86-00513R000205010003-0"





*B-C**B-I-8*

Production of superphosphate from Khishan  
apatite. N. I. Vassil'ev and L. M. Sval'kin (Udo-  
vinsk, Ural'. 1950, 2, 11-24).—Samples of apatite  
(0.5 mm., 36-54%; 0.10-0.3 mm., 44-49%) gave  
a product with poor physical properties; others (0.3  
mm., 31-50%) gave a better product. Preheating  
of the sulphuric acid solution of calcium carbonate  
to the apatite had no influence on the course of the  
reaction. Mixtures of sulphuric and hydrochloric acids  
gave a product with good, and those of sulphuric acid  
and sodium chloride gave with fair, physical properties.  
Addition of ammonium sulphate improved the product.  
Chemical Abstracts.

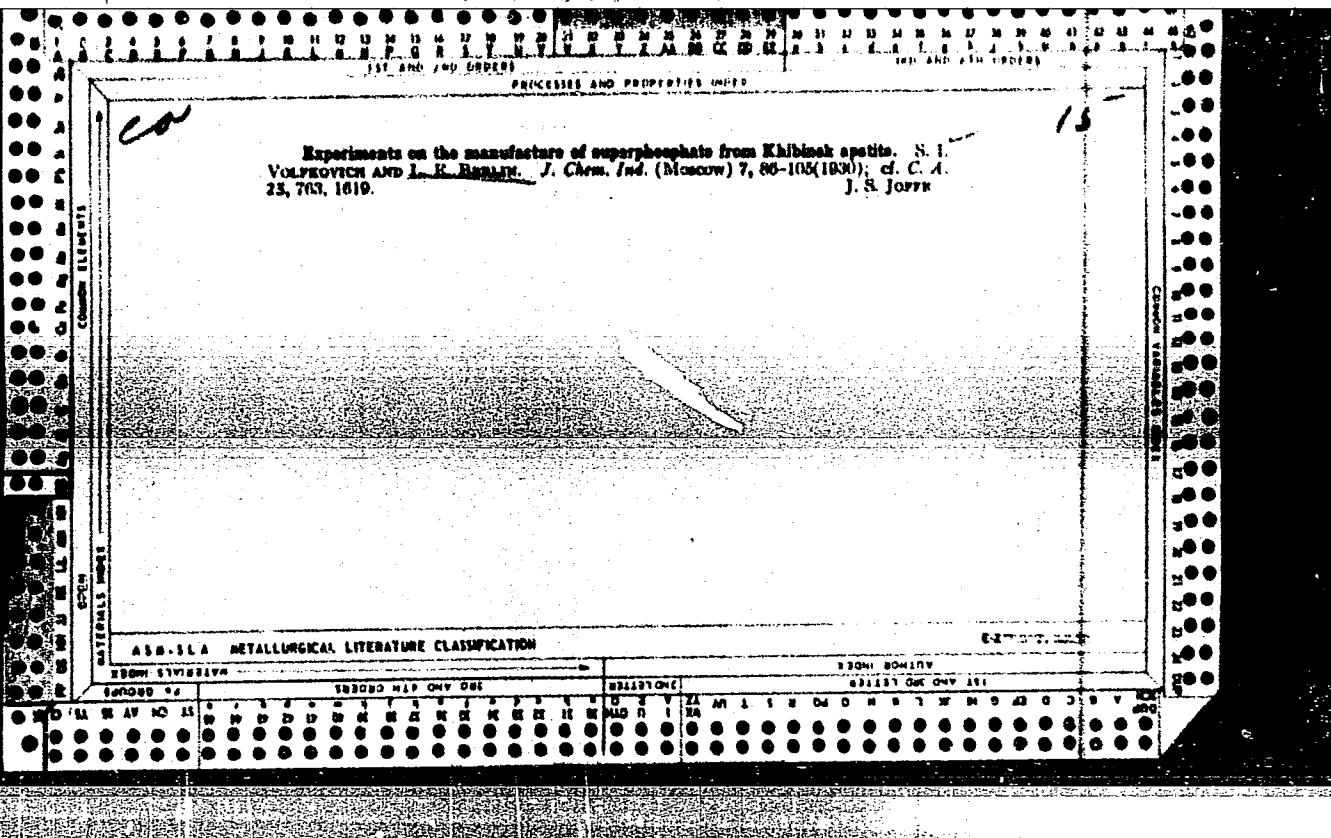
## APPENDIX METALLURGICAL LITERATURE CLASSIFICATION

THERMOCHEMISTRY										ELECTROCHEMISTRY										METALLOGRAPHY																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
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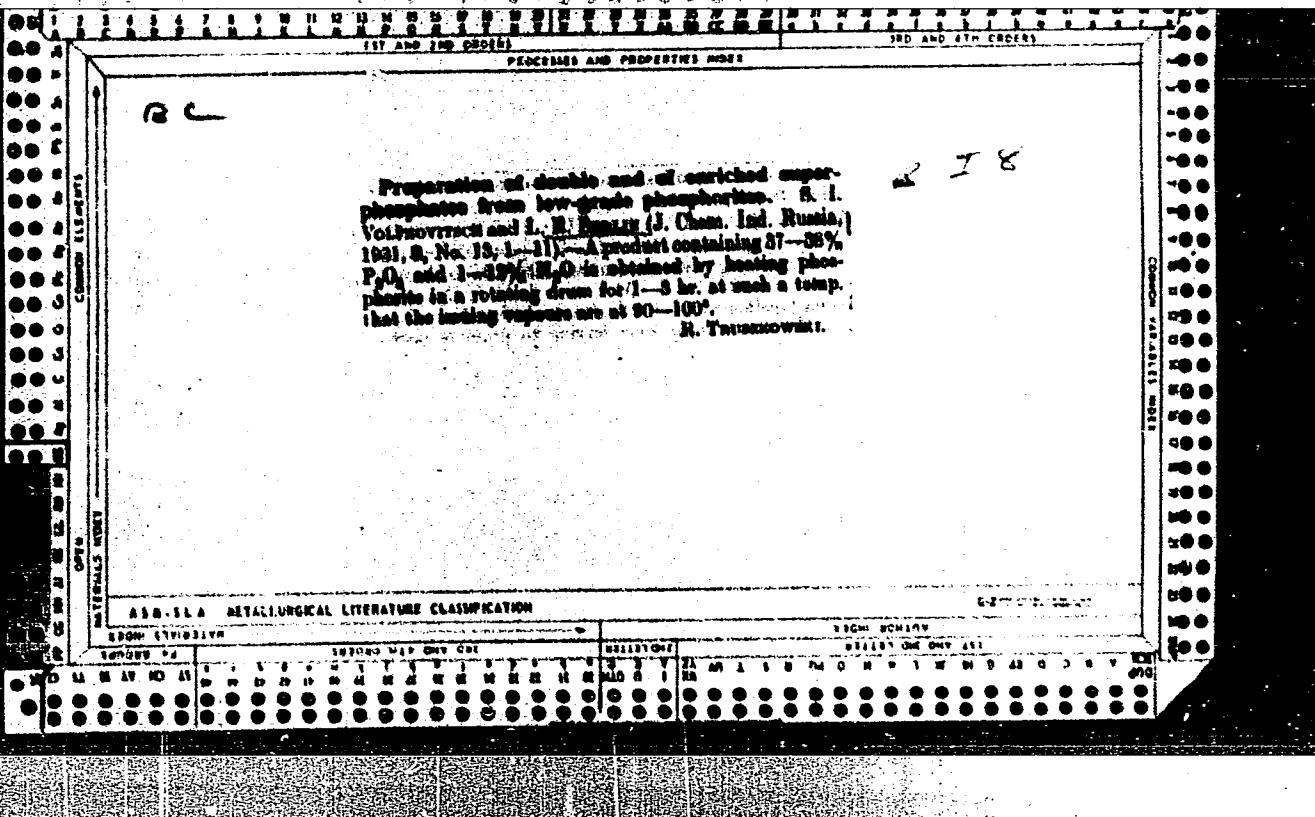


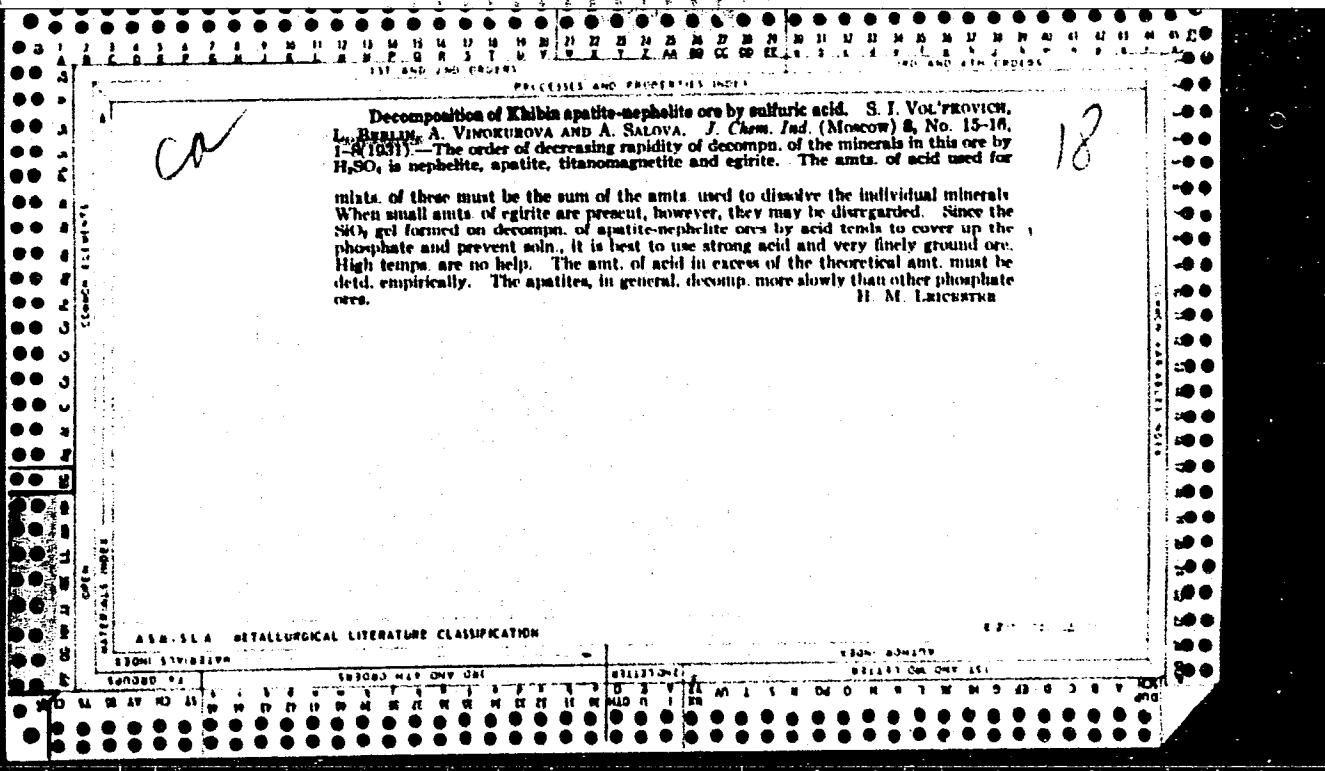
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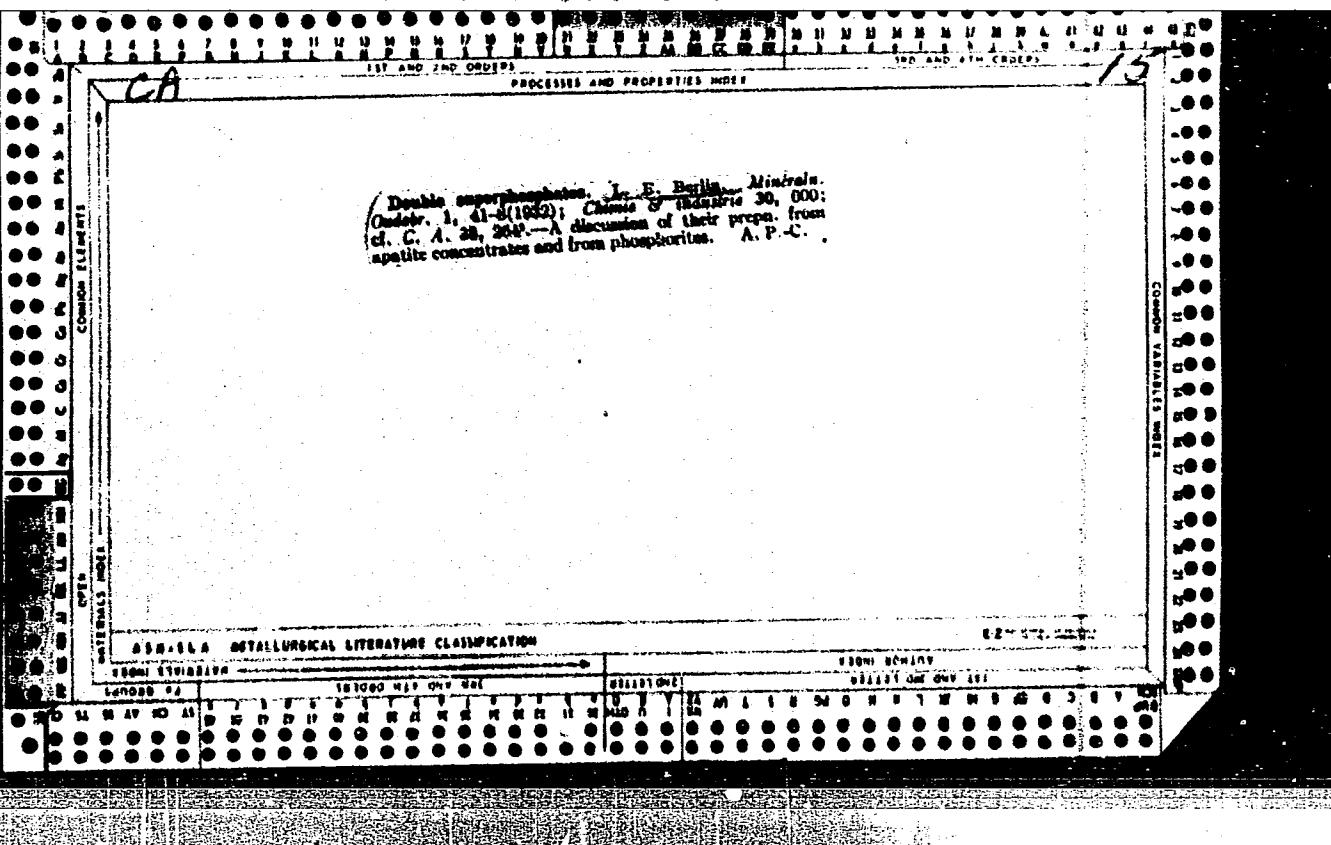


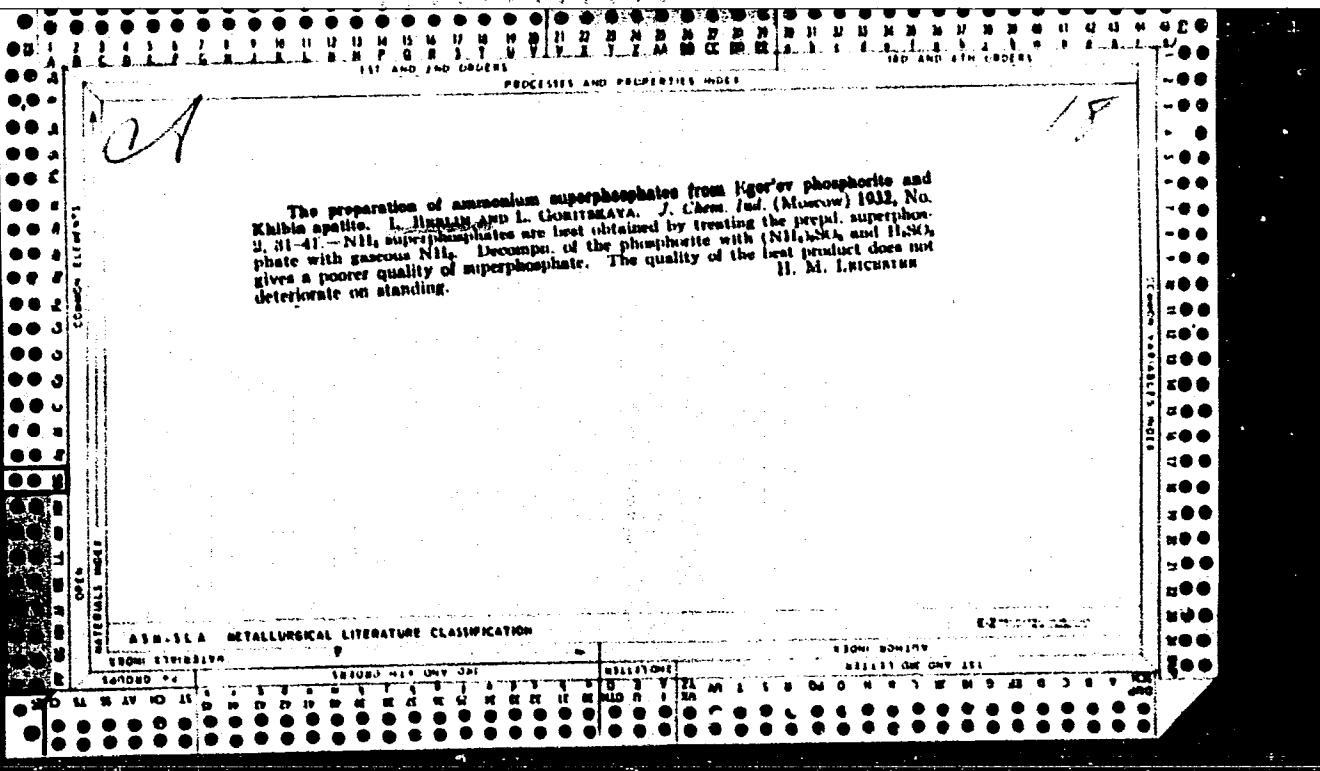
**Khibin apatite and the methods of converting it into fertilizers.** L. B. BIRULIN.  
*Udebeniya i Upravleniye (Fertilizers and Crops)* 3, 695-703 (1931).—Apatite ore contg. 30%  $P_2O_5$  is suitable for the production of low-grade superphosphate. For the manuf. of 14% superphosphate the ores concd. by the flotation process or by the crushing method are used. For double superphosphate, urea contg. more than 30%  $P_2O_5$  must be used. For the production of enriched phosphate, phosphoric acid and amphot. ext. obtained from the ores contg. 30 to 32%  $P_2O_5$  is used. For thermophosphates ores contg. not less than 28%  $P_2O_5$  are most suitable. For elec. volatilization of  $P_2O_5$  any grade of ore, even as low as 16%  $P_2O_5$ , may be used. I. S. Tsvet

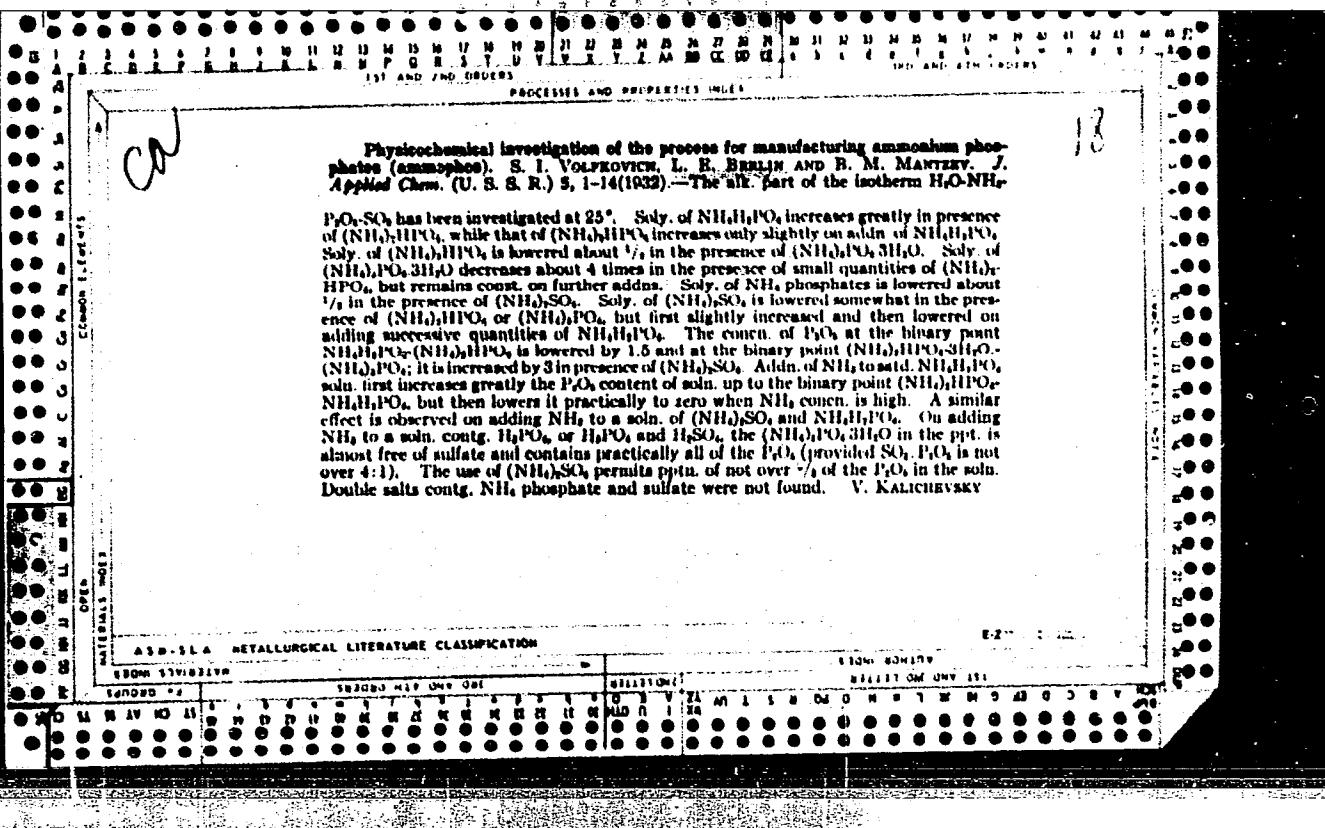
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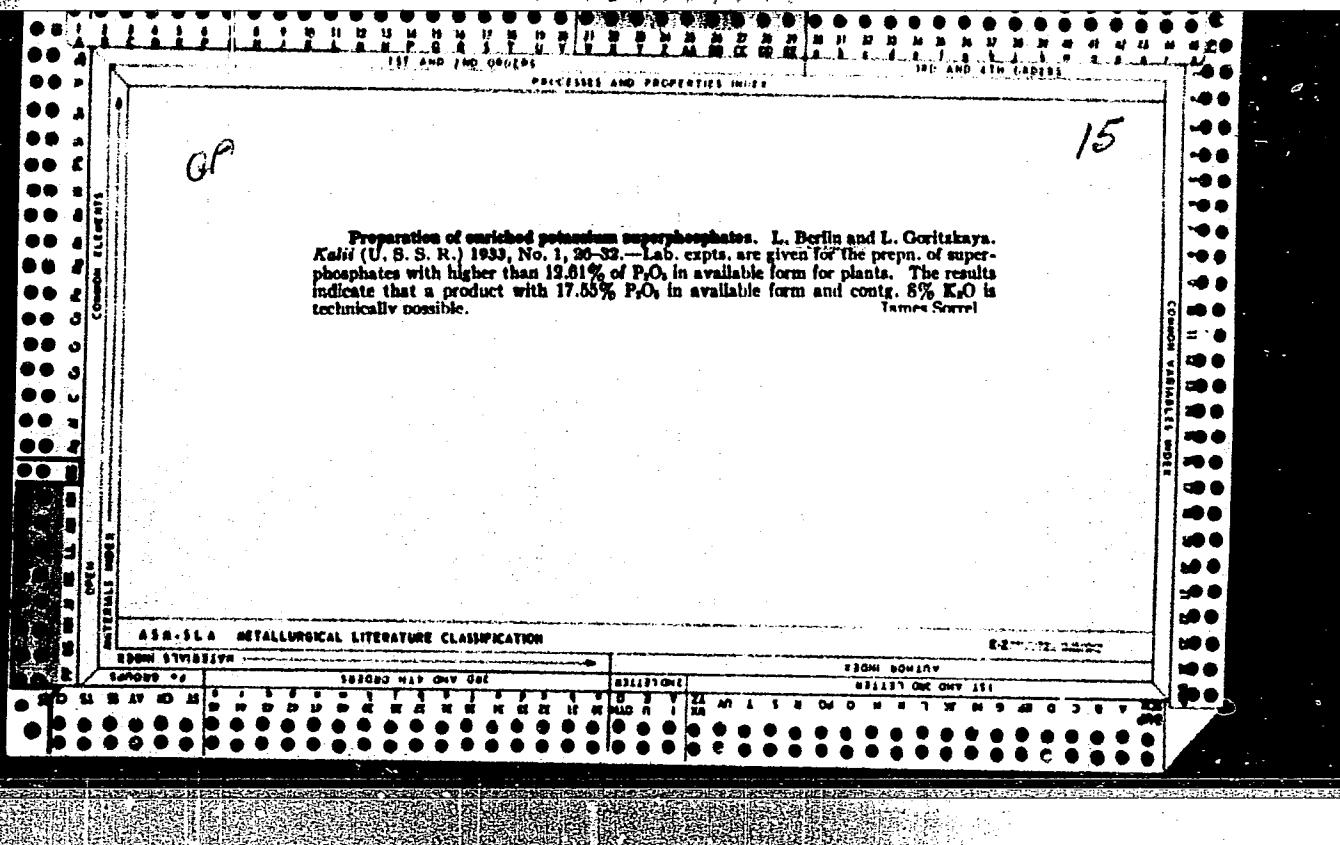


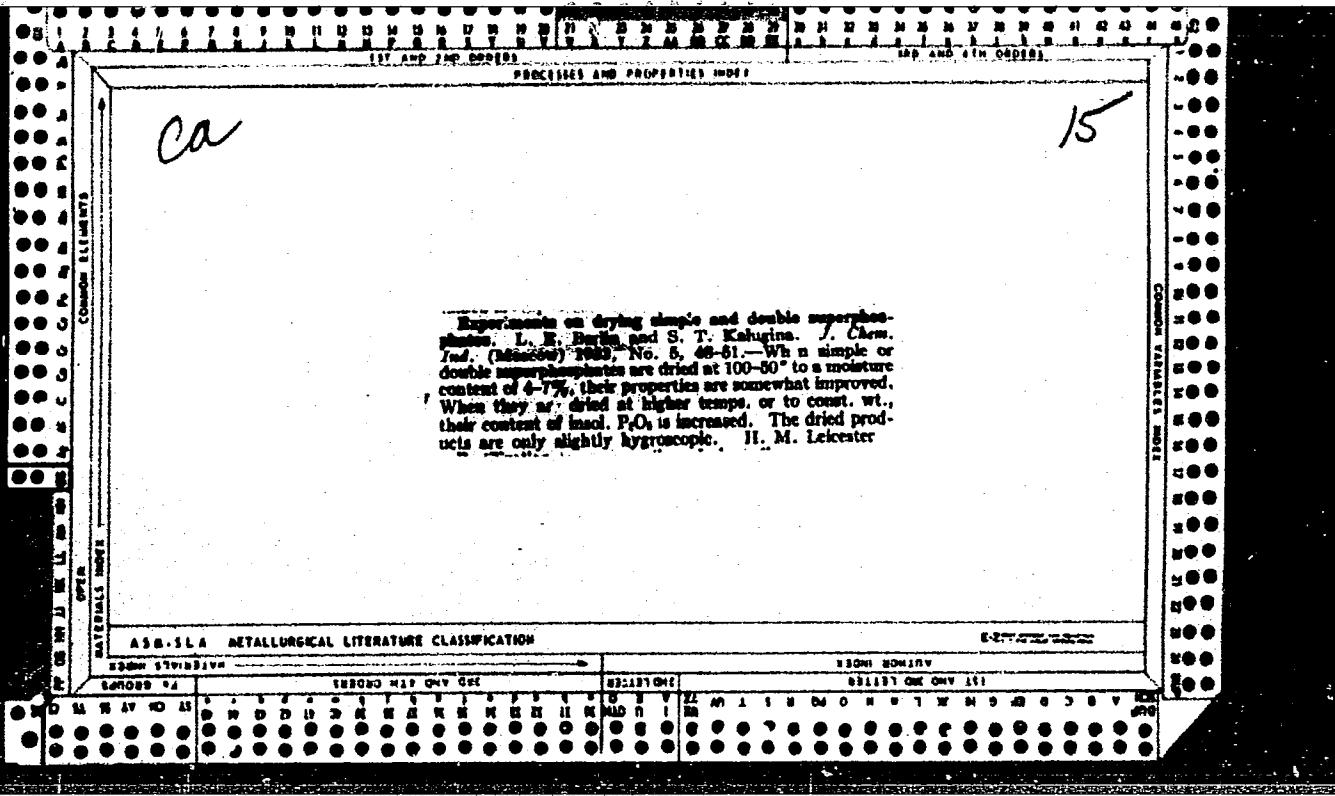


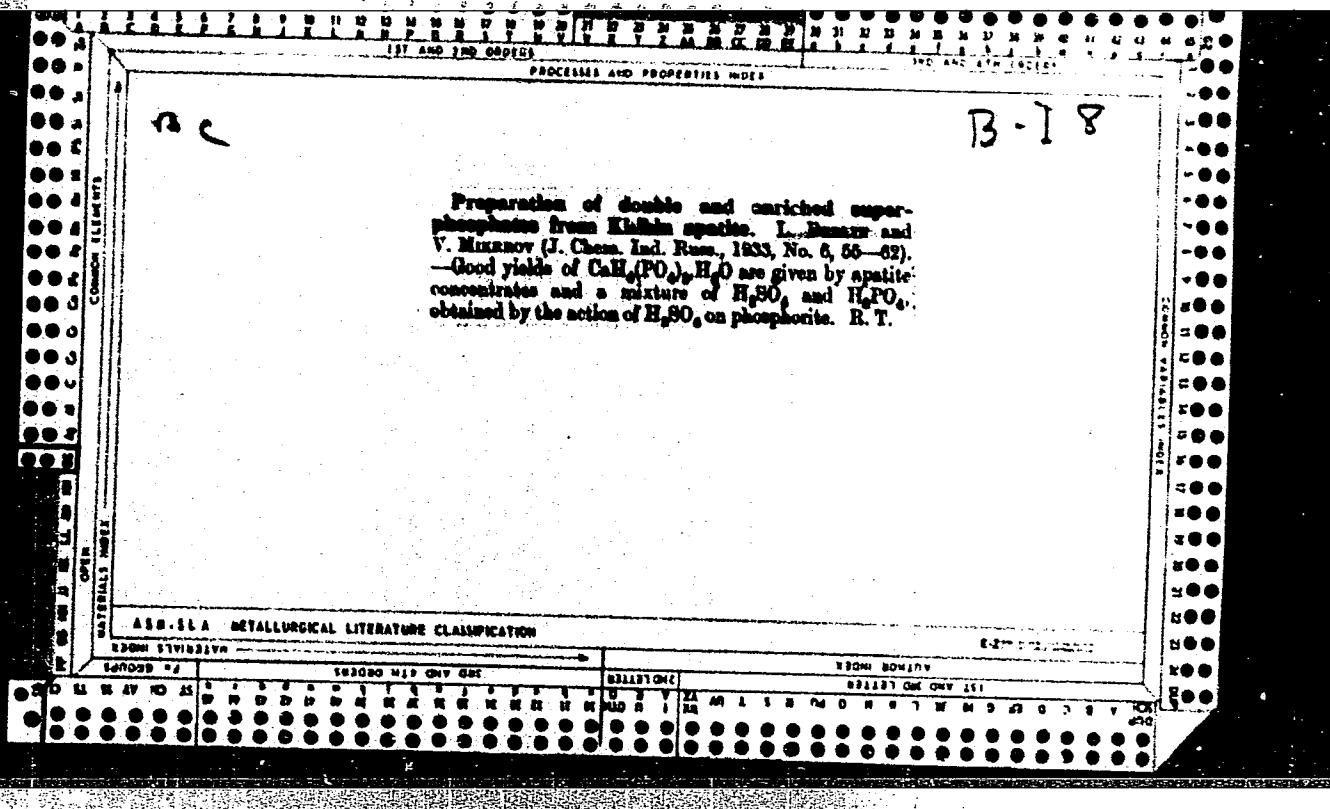


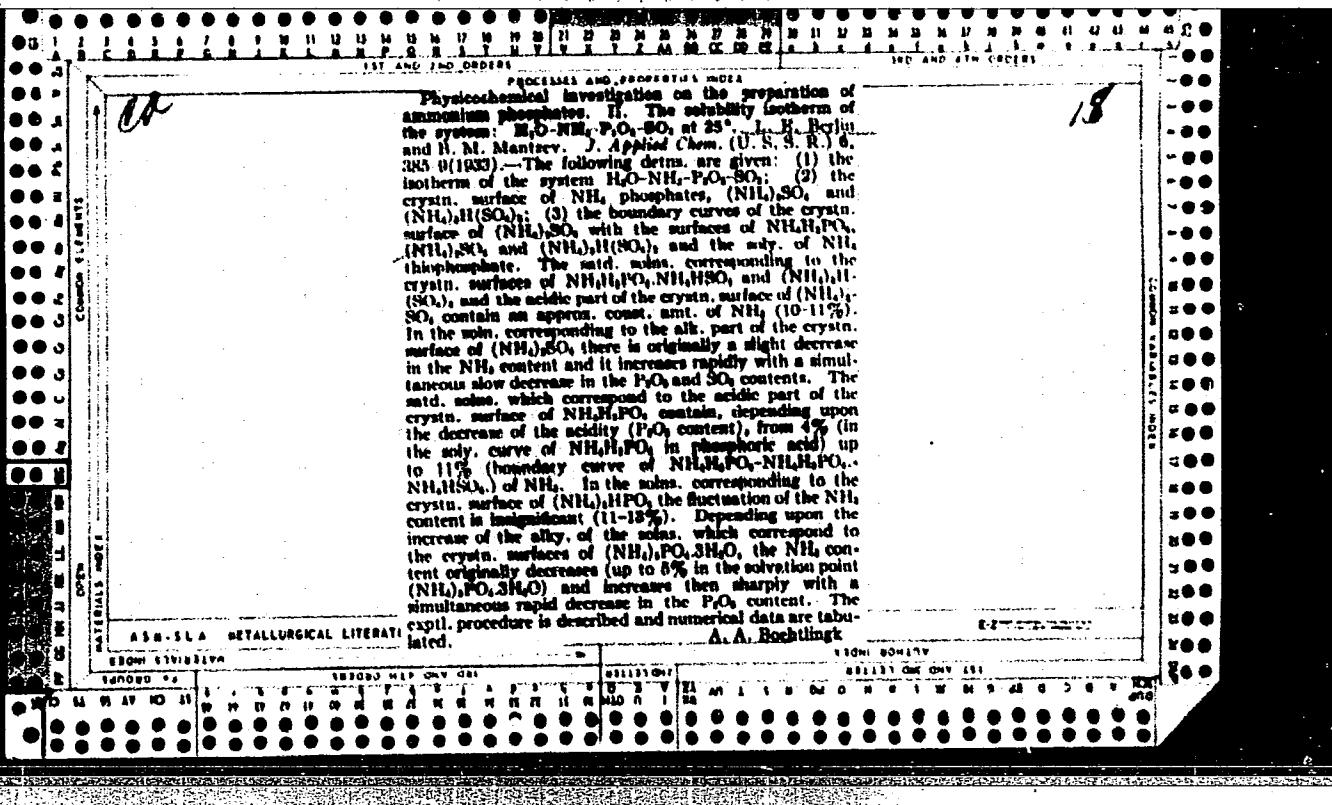


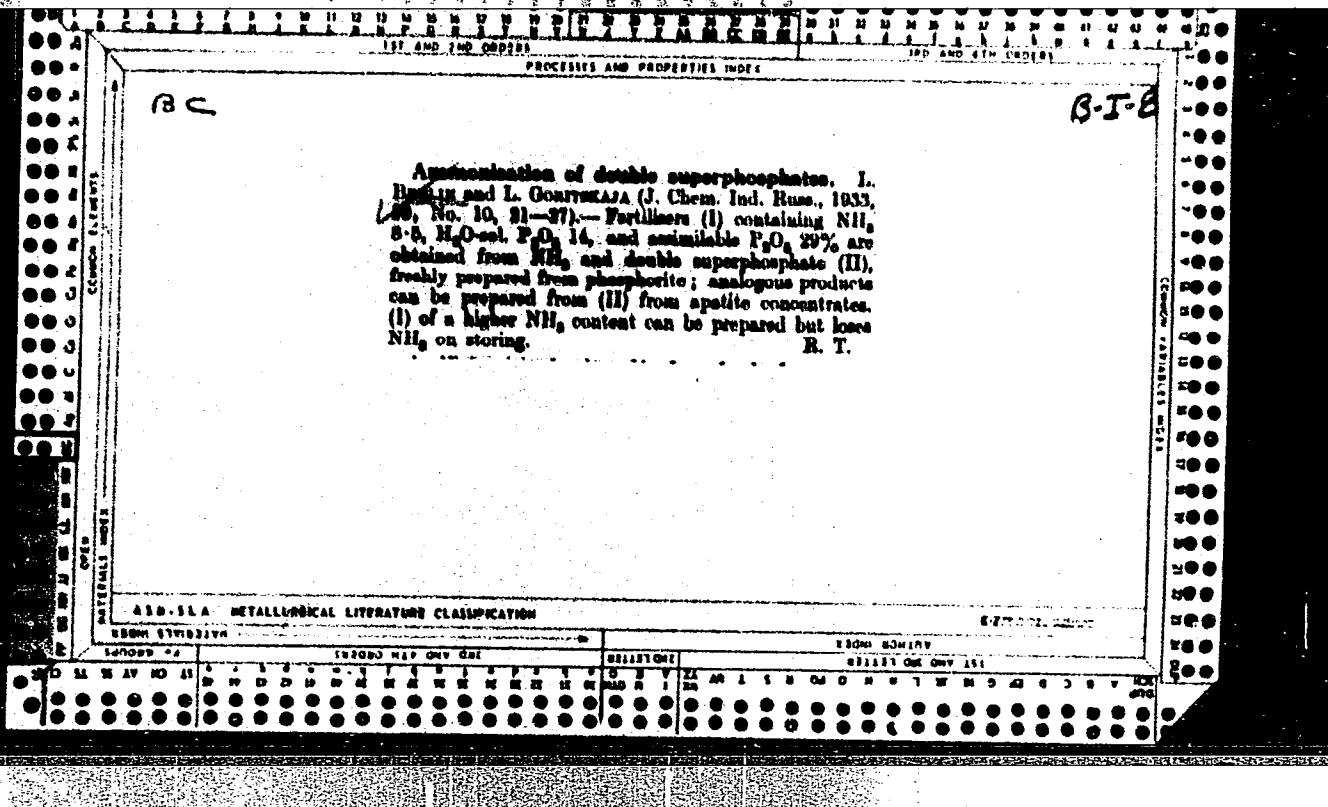


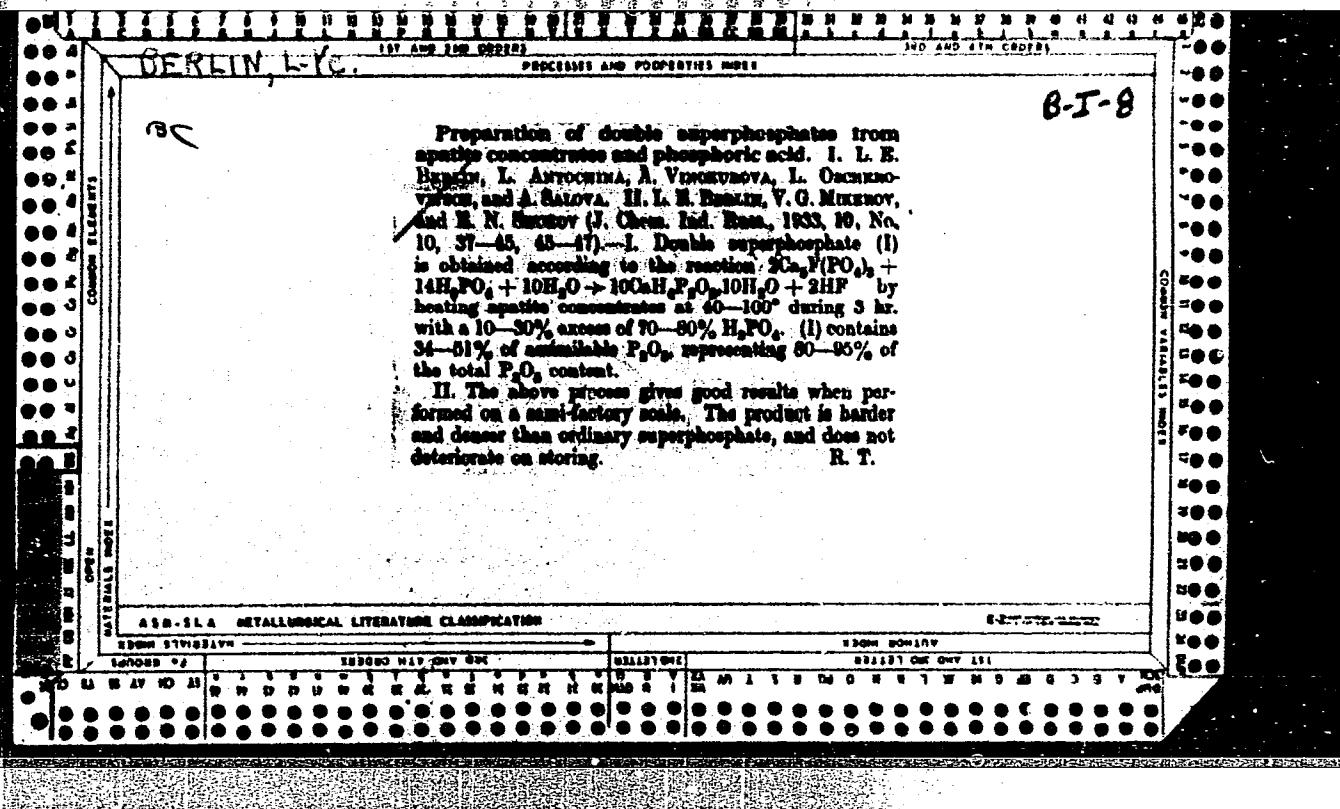


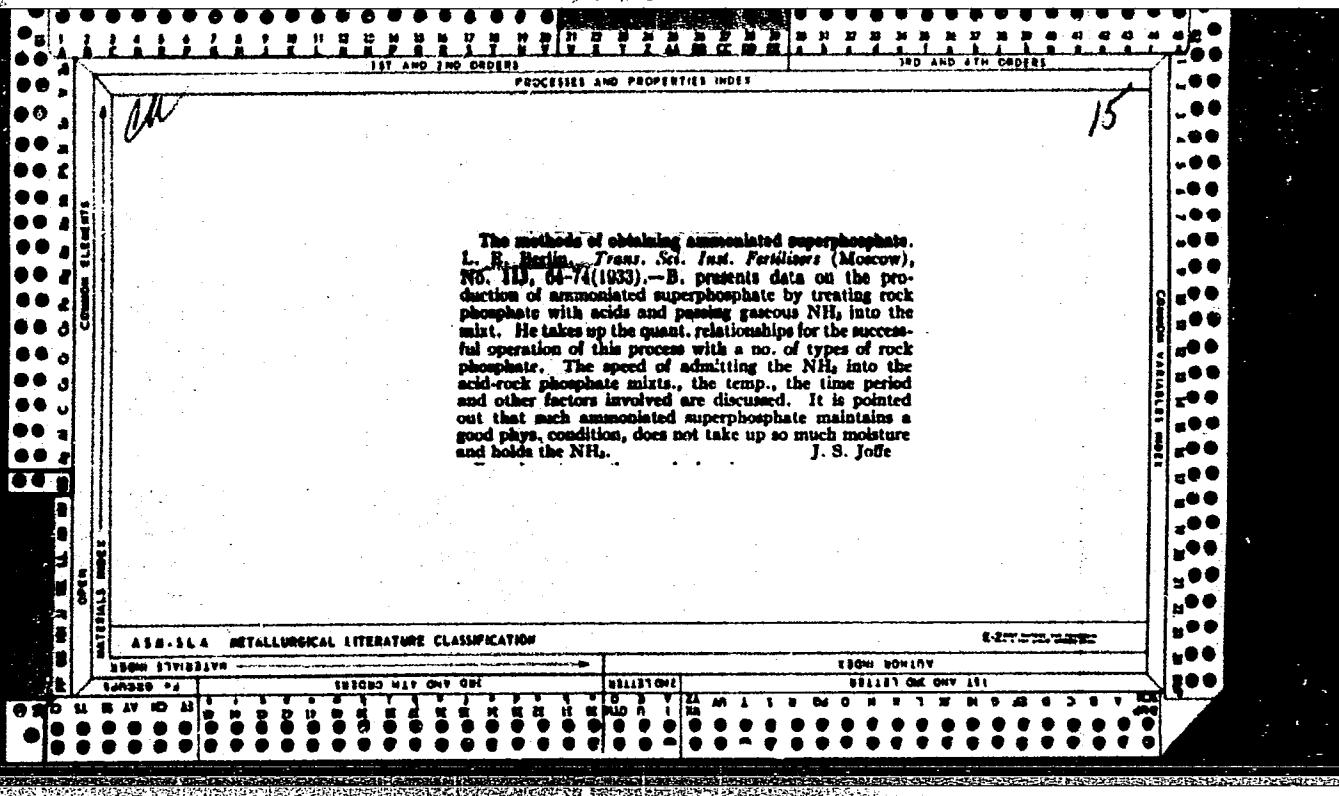












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Production of concentrated potassium-ammonium superphosphates. L. E. Berlin and L. S. Goritskaya. Azhil 1934, No. 5, 19-27; cf. C. A. 28, 2107.—A description of the treatment of phosphate rock. The phosphate rock was treated with the following mixts.: (1) 78%  $H_2SO_4$  and  $KNH_4HPO_4$ , (2) 78%  $H_2SO_4$  and  $K_2(NH_4)_2PO_4$ , (3) 78%  $H_2SO_4$  and  $K(NH_4)_2PO_4$ , (4) 78%  $H_2SO_4$  and  $KNH_4PO_4$ . The superphosphates obtained by the treatment with these mixts. had the following compns. (in % by wt.): (1) total  $P_2O_5$  18.50, available  $P_2O_5$  15.94,  $K_2O$  8.16,  $NH_4$  1.98, Cl 2.0; (2) total  $P_2O_5$  19.01, available  $P_2O_5$  16.8,  $K_2O$  5.95,  $NH_4$  2.94, Cl 4.06; (3) total  $P_2O_5$  16.61, available  $P_2O_5$  13.04,  $K_2O$  4.28,  $NH_4$  3.48, Cl 3.89; (4) total  $P_2O_5$  17.34, available  $P_2O_5$  15.06,  $K_2O$  5.21,  $NH_4$  1.20, Cl 4.01. The compn. of the phosphate rock treated was, in %:  $P_2O_5$  25.51,  $(Al, Fe)_2O_3$  5.79,  $CO_2$  4.8. The rock was treated with mixt. (1) as follows: KCl was dissolved in  $H_2PO_4$  (10.5%) to form  $KNH_4PO_4$ ;  $NH_4$  was then passed through the solution to form  $KNH_4HPO_4$  which was added to the 78%  $H_2SO_4$ , the mixt. stirred and the phosphate rock introduced. In treatment with (2), (3) and (4)  $NH_4$  gas was passed through  $H_2PO_4$  soln. first, the resulting ammonium phosphate added to 78%  $H_2SO_4$  and then the KCl together with phosphate rock was

introduced. Conclusions: For the best results the theoretical quantity of  $H_2SO_4$  should be used and the concn. of acid should be 50% after it is mixed with the  $KNH_4PO_4$  soln.; increase of  $KCl/NH_4$  in prepnd. mixts. increases the available  $P_2O_5$ /total  $P_2O_5$  ratio in the superphosphate; storage of the superphosphate exposed to the air does not change its comtn.

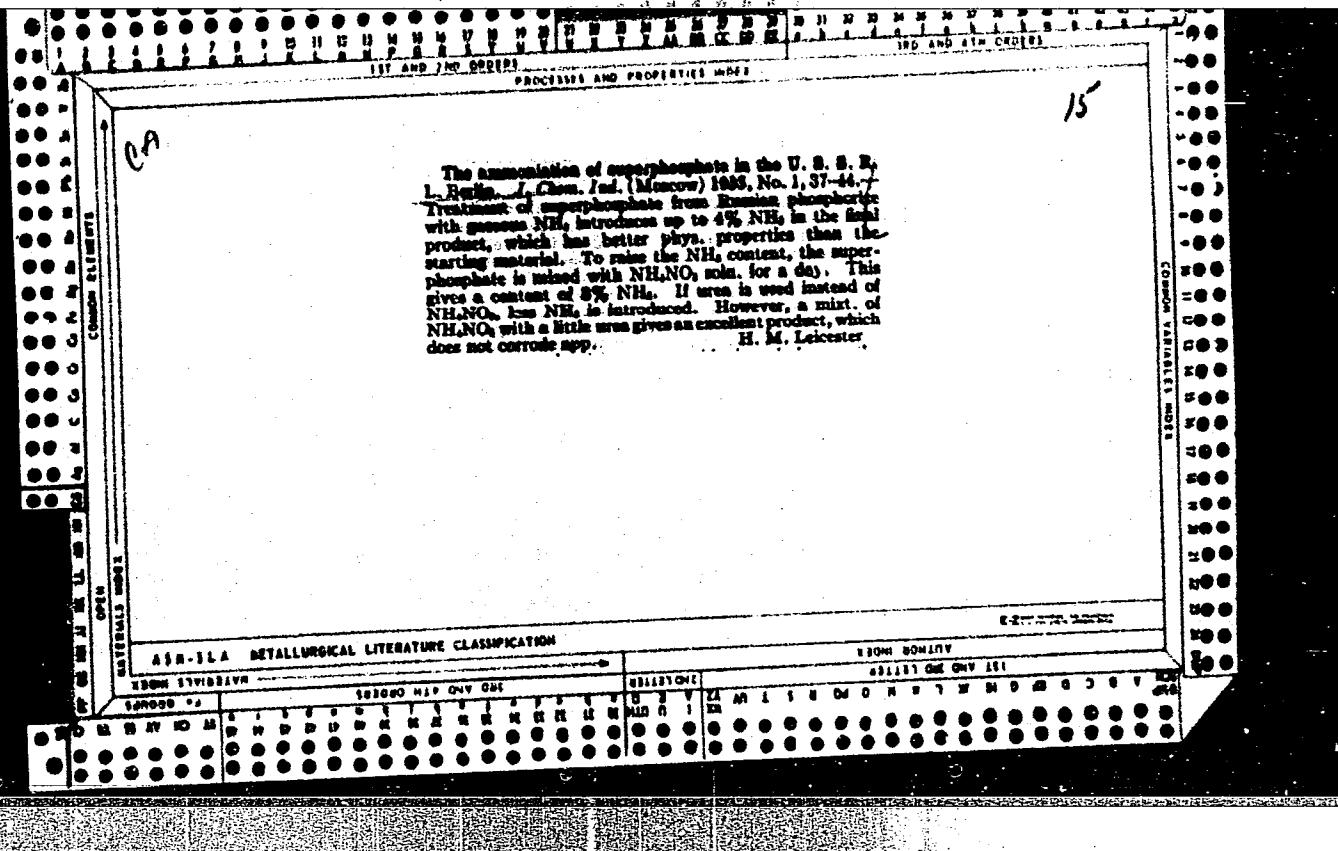
James Sorrell

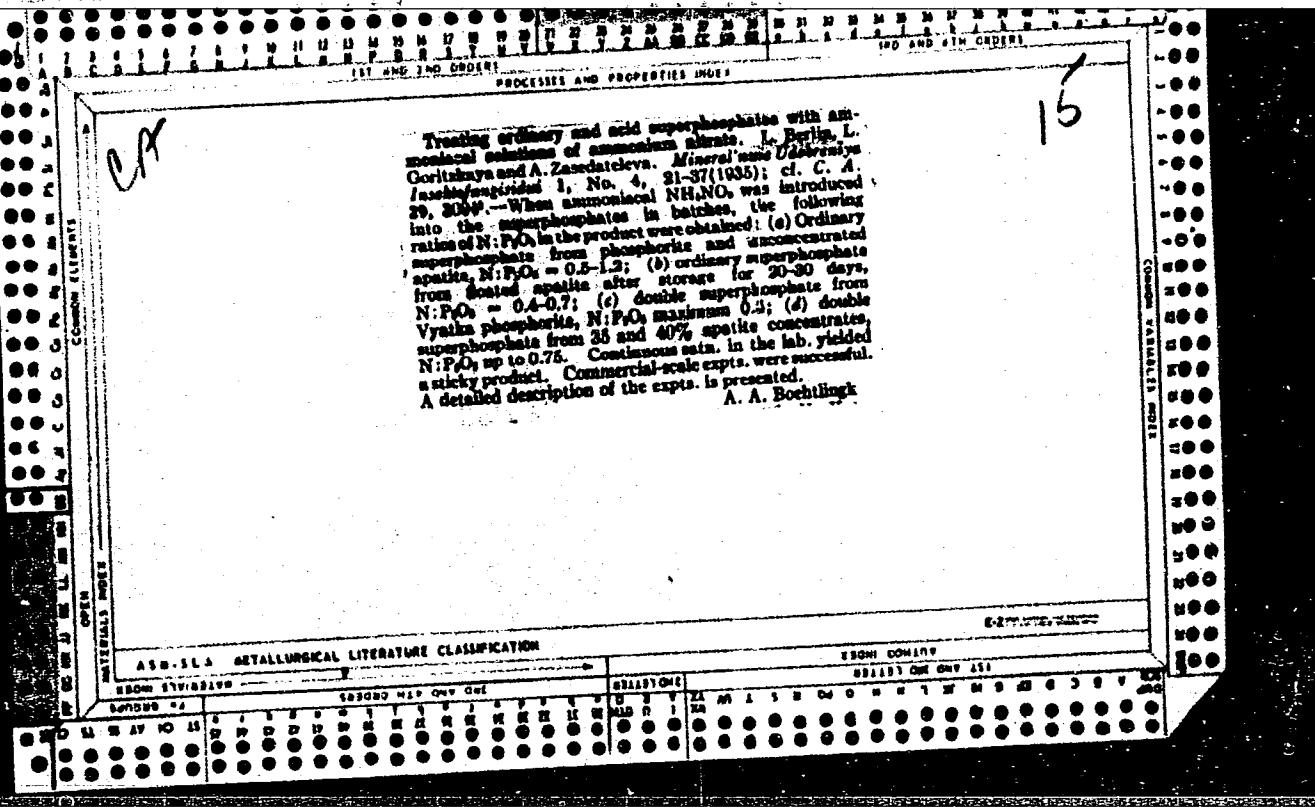
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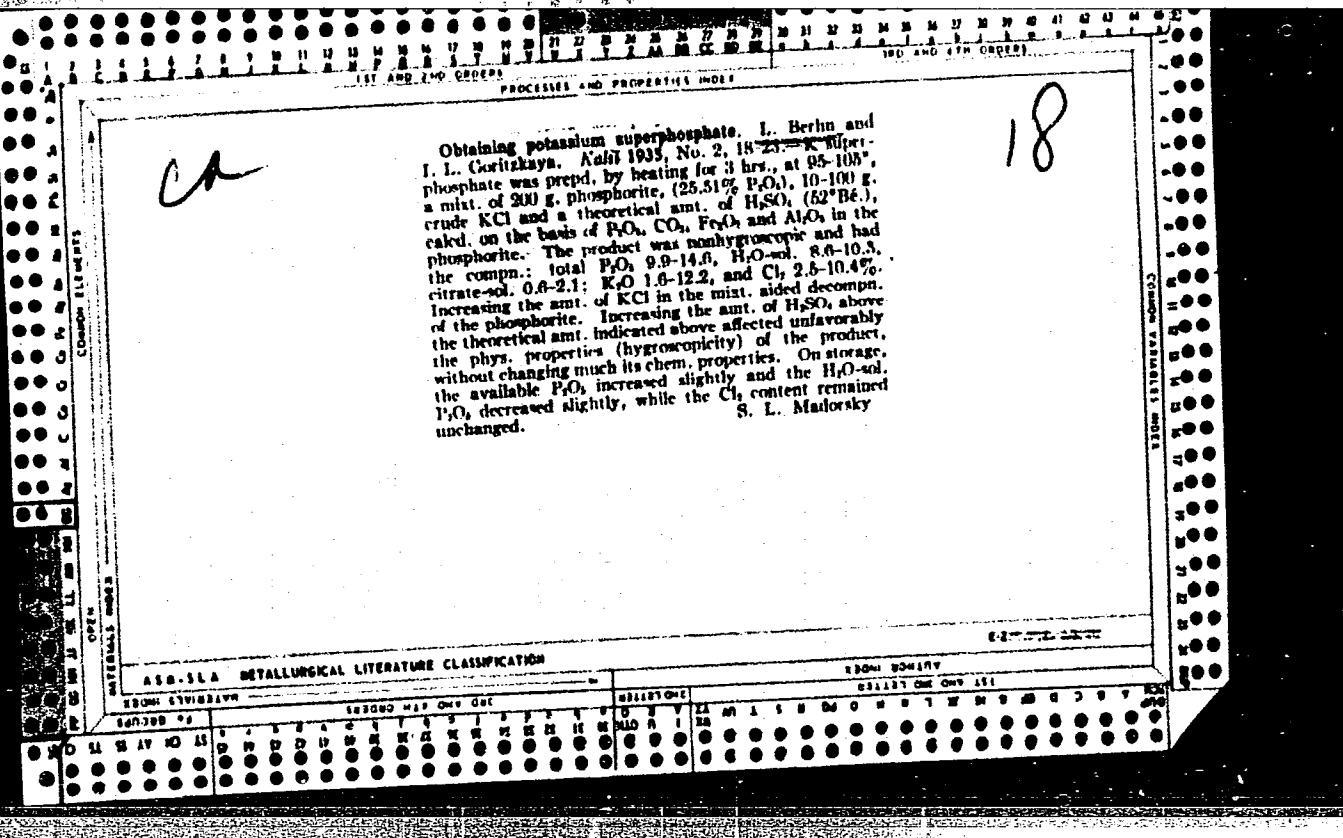
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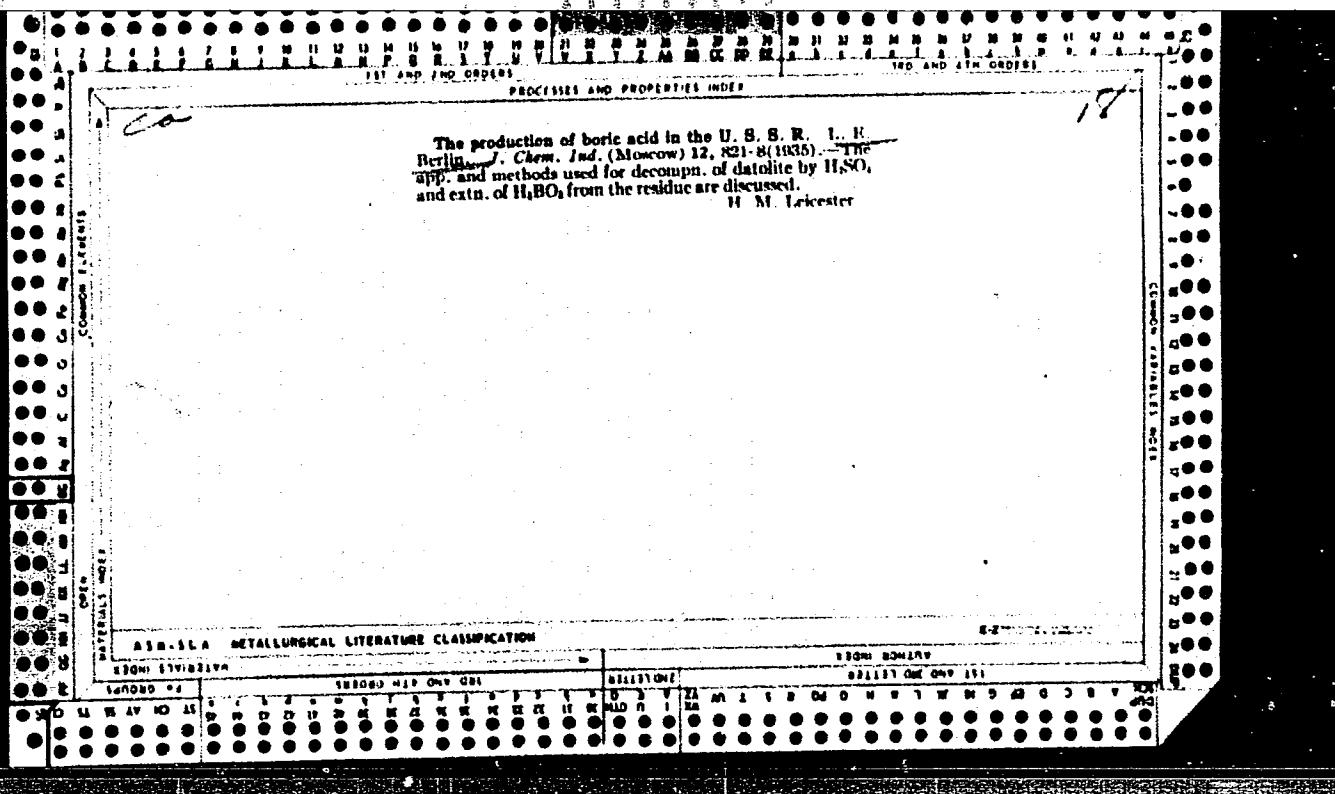
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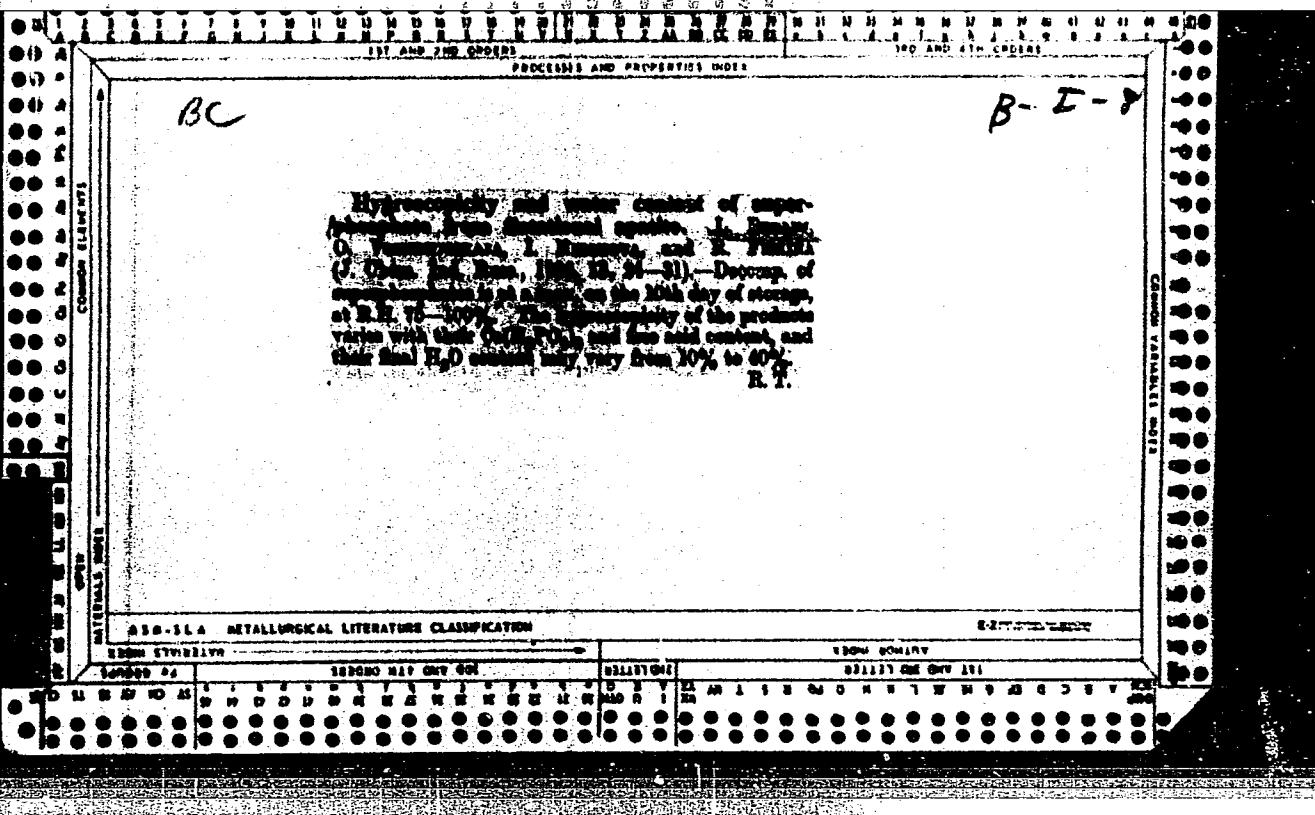
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Preparation of phosphorus-nitrogen fertilizers based on urea-cyanamide liquor. I. Berlin and L. Gonzalez (J. Chem. Ind. Russ., 1926, 22, 2399-1605).—The product obtained by adding urea-NH<sub>2</sub> (I) to double superphosphate, to a total N content of 14.5% (urea-N 7.5%), does not deteriorate when stored in open containers for 4 months. The available P content of the fertilizer prepared analogously from simple superphosphate ( $(\text{Na}_2\text{O})_2 \cdot 2\text{P}_2\text{O}_5$ , 20%) falls when the total N content exceeds 10%, but satisfactory products containing up to 15% N are obtained by adding a mixture of (I) and NH<sub>4</sub>NO<sub>3</sub> to the superphosphate. Loss of NH<sub>2</sub> over  $\text{MnO}_2 \cdot \text{NH}_3$  (III) does not occur during storage of (II), while a 1:1 mixture of (II) and  $(\text{Na}_2\text{O})_2 \cdot 2\text{P}_2\text{O}_5$  (III) loses 50-55% NH<sub>2</sub> after 2 hr. and 100% after 24 hr. The loss of NH<sub>2</sub> in (III) over  $\text{MnO}_2 \cdot \text{NH}_3$  (III) gives 25% of its NH<sub>2</sub> as  $\text{NH}_3$ . T.

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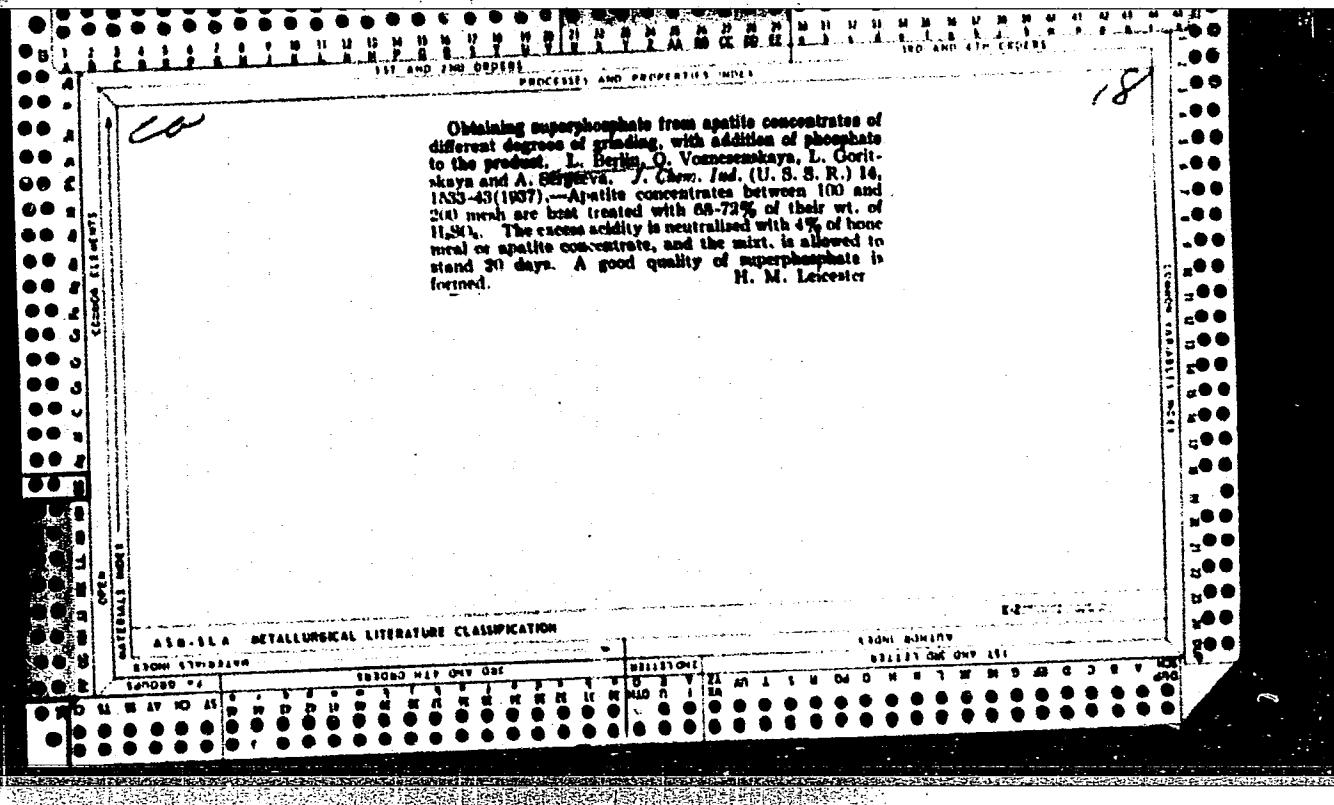
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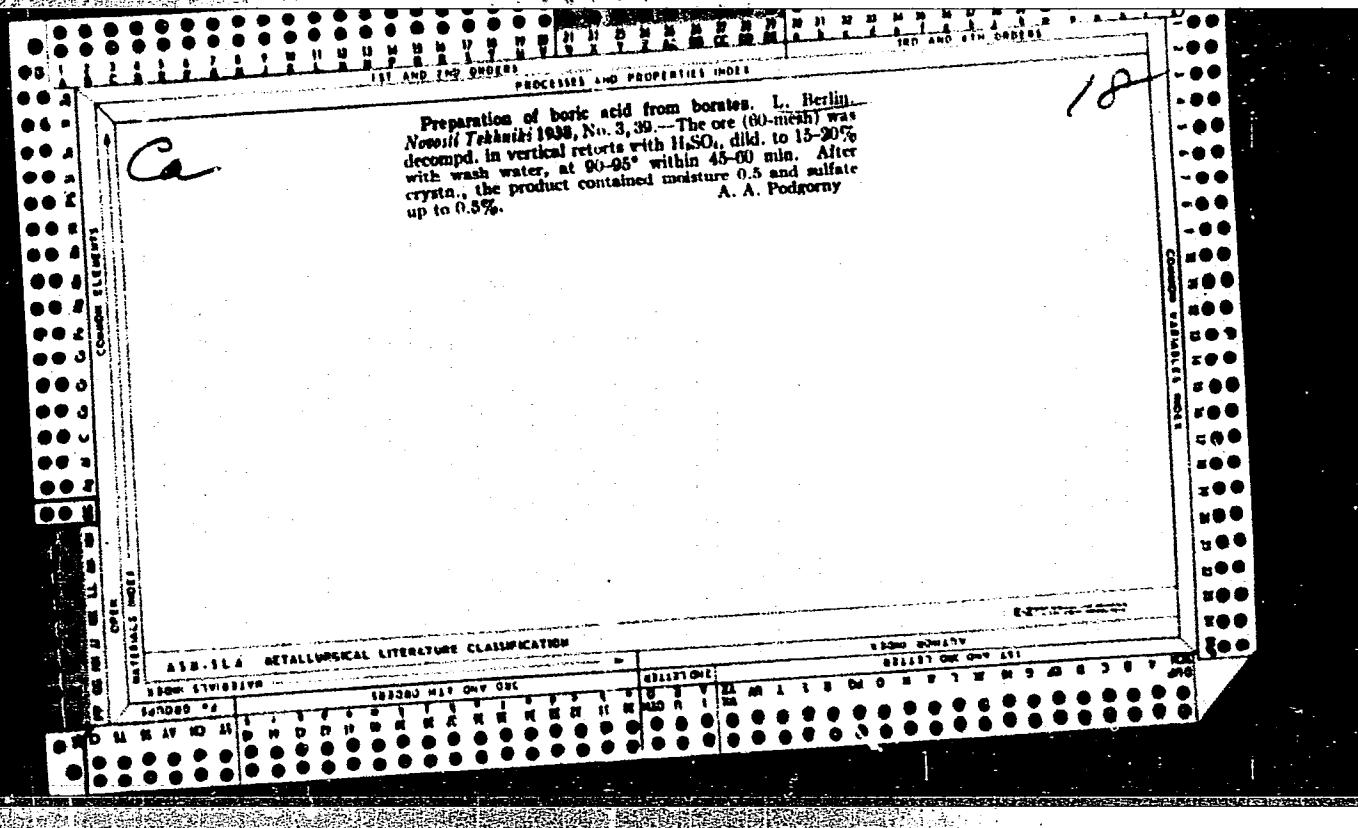
Preparation of nitrogen-phosphorus-potassium fertilizers from Viatka phosphorite, potassium chloride, and nitric acid. L. BERNI, I. NIKONOVA, and R. FURKINA [J. Appl. Chem. Russ., 1937, 10, 970-987].—Phosphorite (II) is heated at 900° for 1 hr., treated with 50%  $HNO_3$  (6 mole/l. of  $HNO_3$  per mole of  $Ca_3P_2O_9$ , and 2 mole/l. per mole of  $CaCO_3$ ), and the resulting suspension filtered after 20 min.; the residue is washed with 50-100 pts. of  $H_2O$  per pt. of (I) taken. Under these conditions 90-95% of the  $P_2O_5$  is extracted, with a loss of 3-7% of the N introduced as  $HNO_3$  (due chiefly to evolution of  $N$  oxides). 16% eq.  $CaO$  is added gradually (during 20 min.) to the filtrate, to  $pH$  6-6, at room temp., and the suspension stirred for 15-30 min. The ppt. so obtained contains  $H_2O$  50,  $P_2O_5$  (50% citrate-sol.) 11-12.5, and N 8.5%; its hygroscopicity rises with its  $Ca(NO_3)_2$  (II) content, and is lowered by washing, which also causes increase in the  $[P_2O_5]$ . The filtrate + washings are conc. to 20%, (II), an equiv. amount of  $KCl$  is added, and the solution cooled to 0°; when 63% of the  $NO_3^-$  separates as  $KNO_3$ . Up to 80% of the chloride contaminants of the  $KNO_3$  may be removed by repeated washing with the wash- $H_2O$  from the previous operation. A satisfactory solution of the problems of utilizing the mother-liquor from crystallization of  $KNO_3$  was not

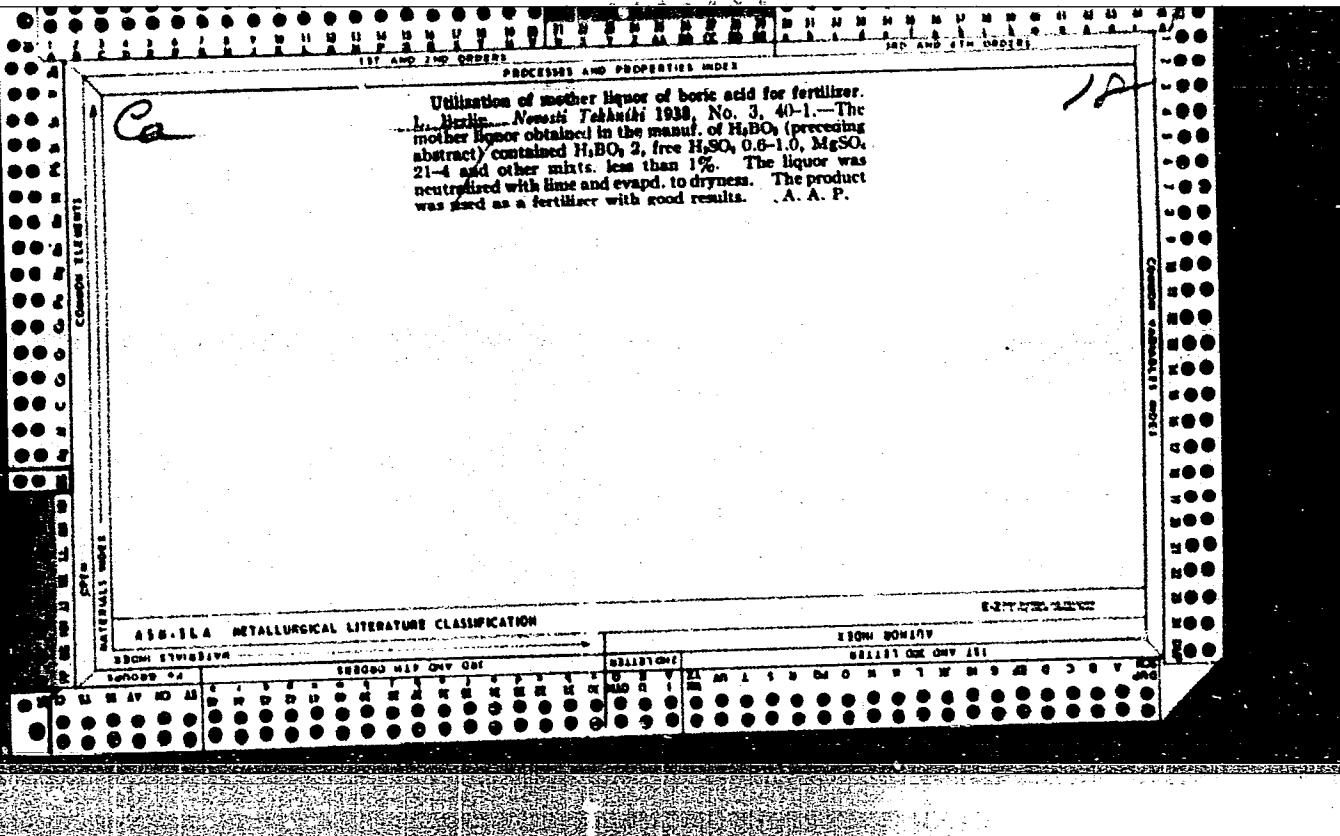
R.T.

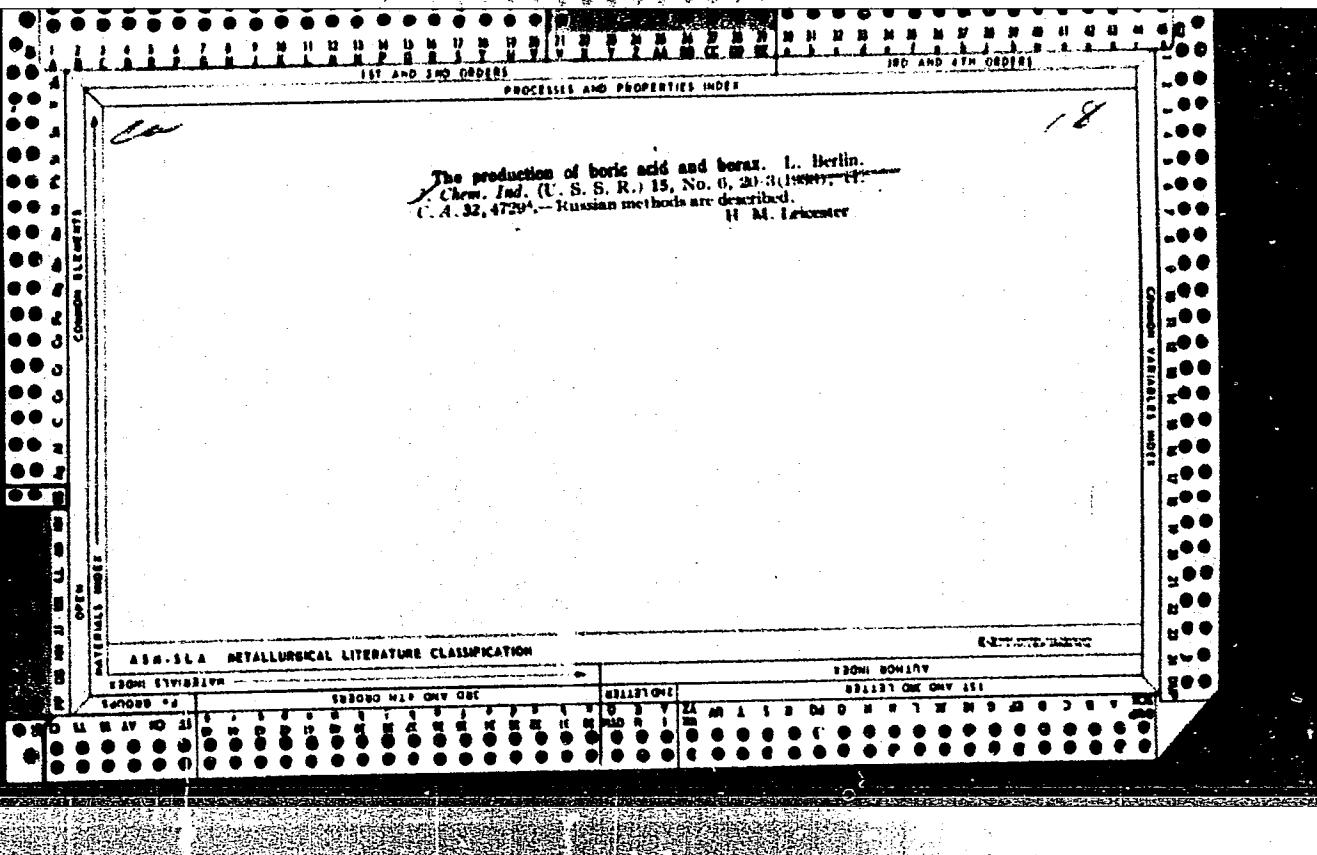
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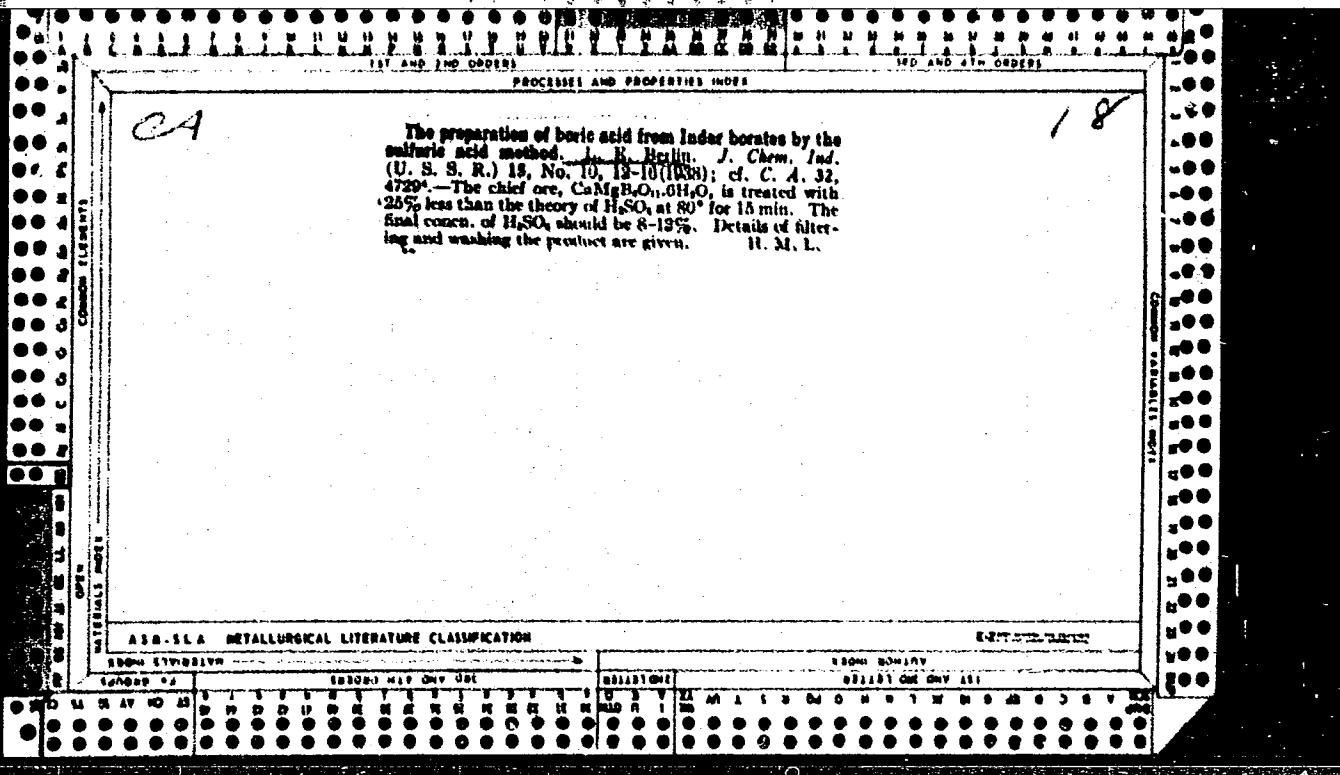
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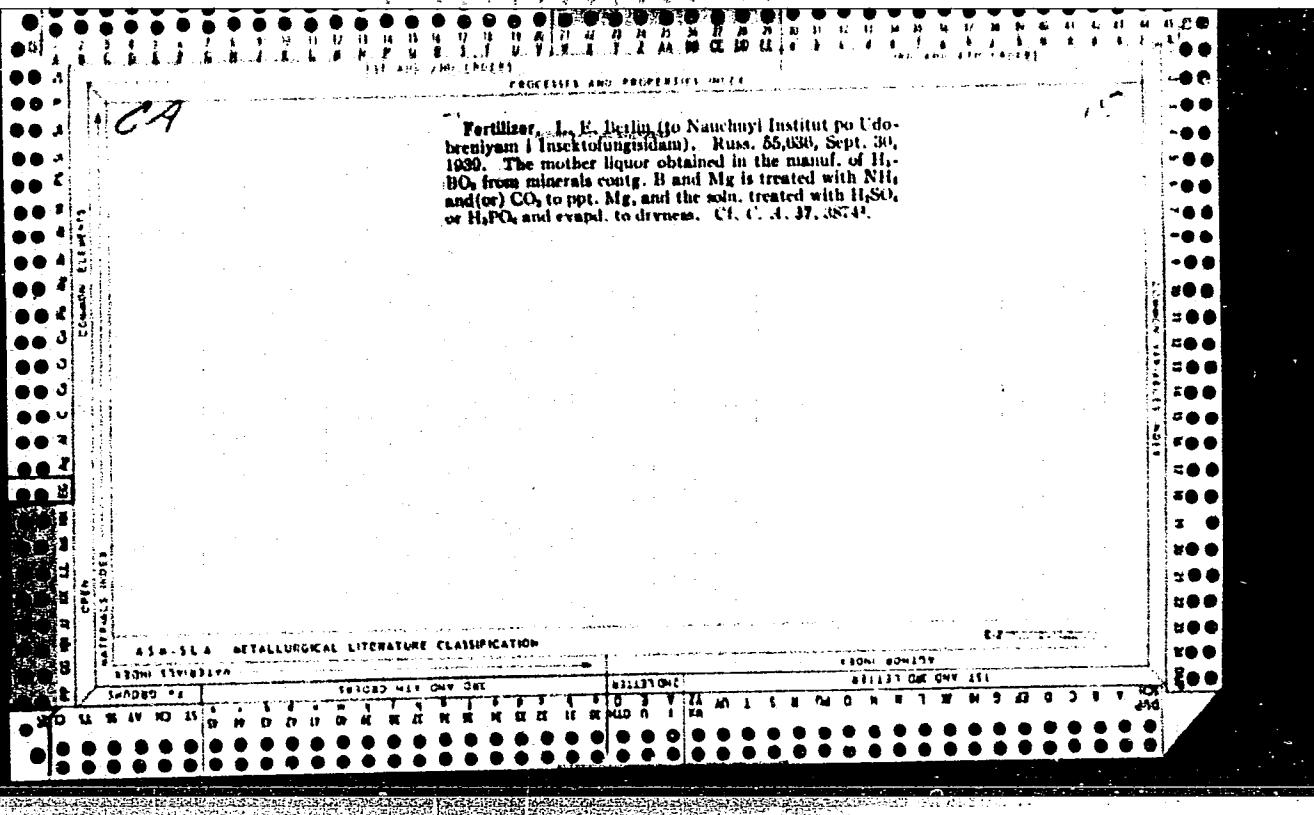












BERLIN, L. E.

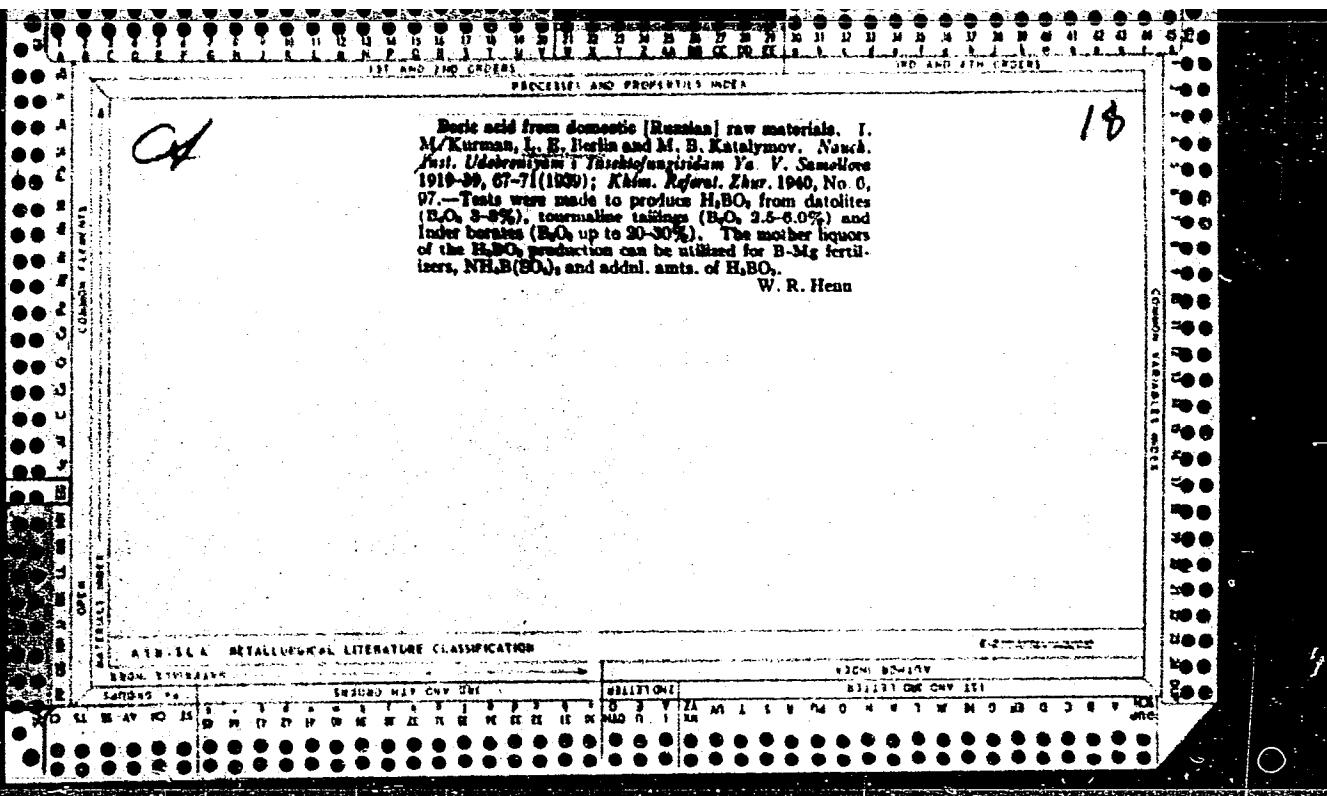
(see Kurman, I. M. and Vol'Frkovich, S. I.) "Boromagnesium Phosphate Fertilizers," L. E.  
Berlin, inventor, Sci Inst of Fert and Insectofung im Ya. V. Samoylov, Pat 55, 194 (USSR),  
31 July 1939 (SEE: Inst. Insect/Fung. in Ya. V. Samoylov)

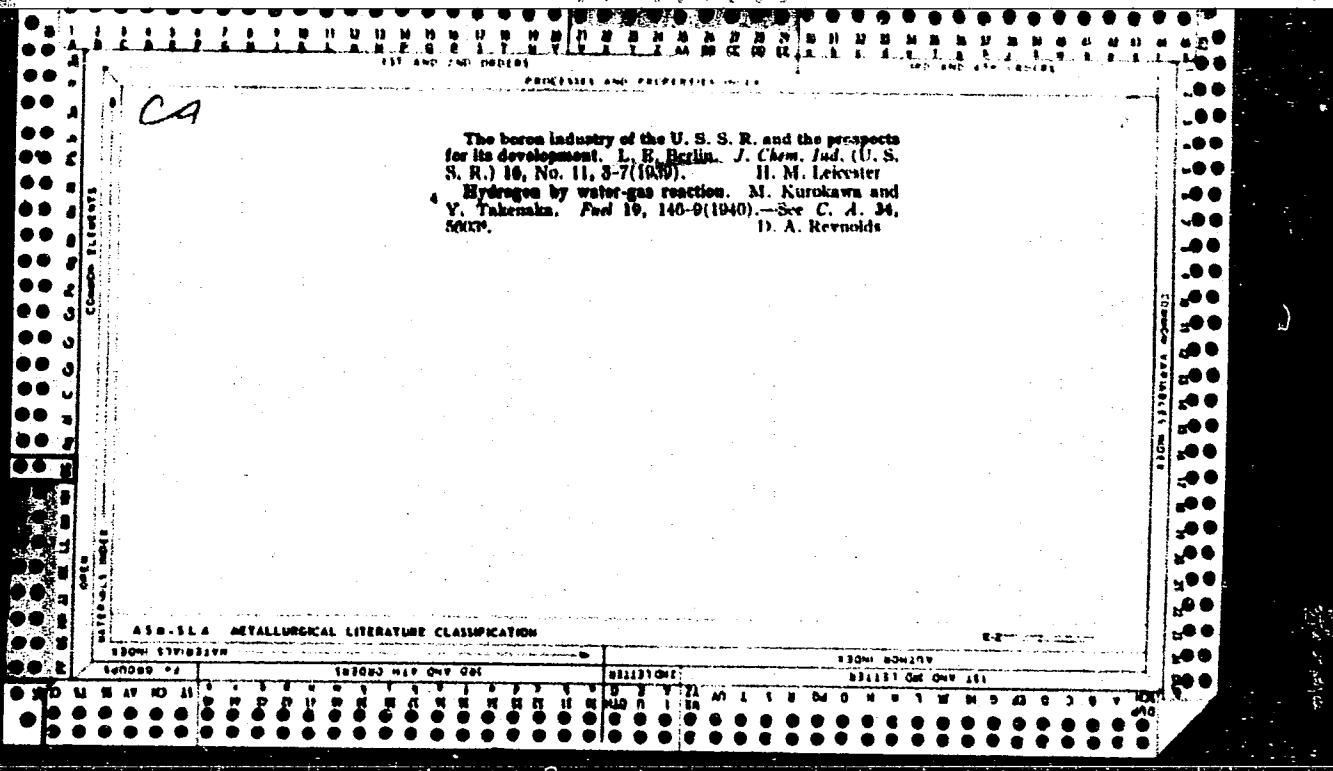
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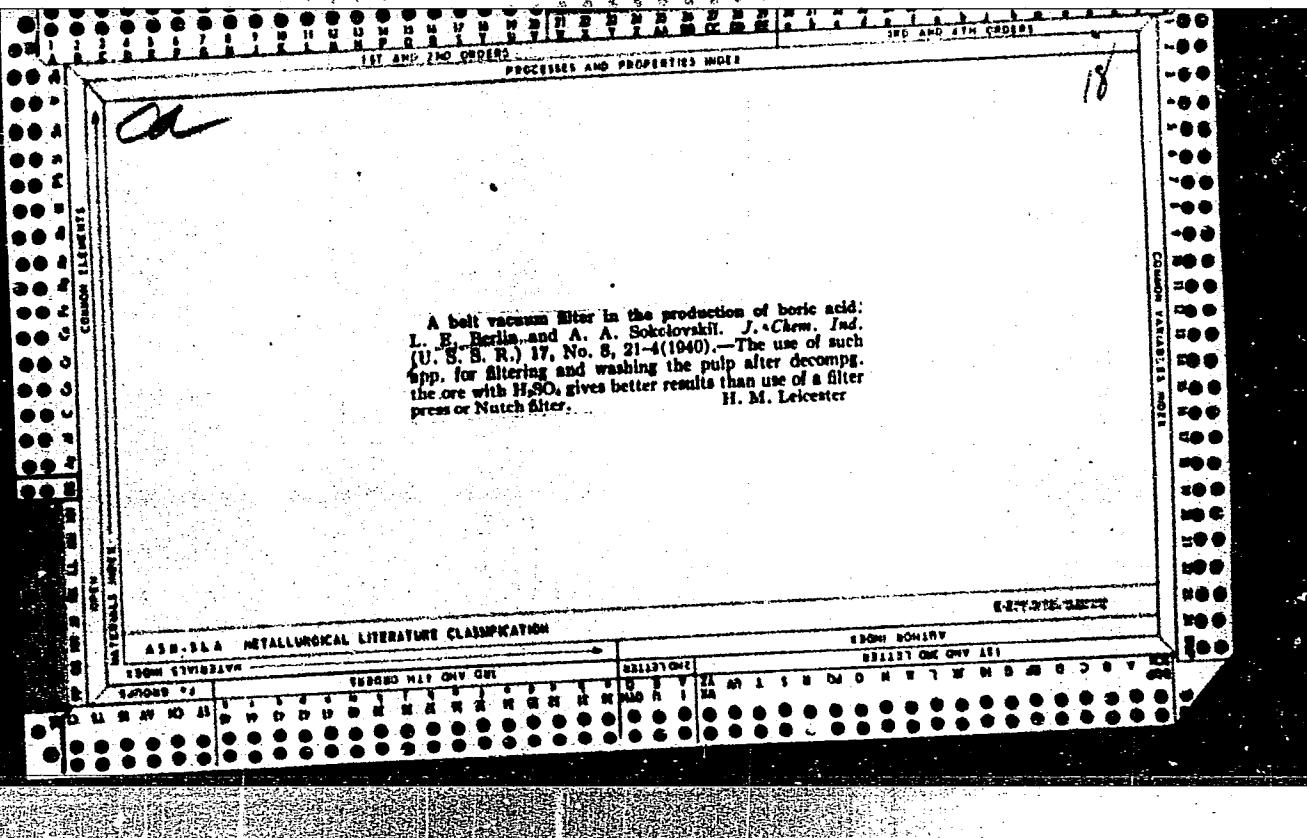
BERLIN, L. E.

"Khibin Apatite," S. I. Vol'fkovich, M. P. Fiveg, and L. E. Berlin,  
Nauch Inst Udobreniyam i Insektotofungisidam Zhur 1919-39, pp 17-24  
(1939), Khim Referat Zhur 1940, No 6, pp 86 (SEE: Inst. Insect/  
Fungi. in Ya. V. Samoylov)

SO: U-237/49, 8 April 1949







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18

Investigation of equilibrium systems in the production of ammonium phosphates. S. I. Vol'kovich, L. I. Berlin and B. M. Mantsev. *Trans. Sci. Inst. Fertilizers* (U. S. S. R.) No. 133, 238-41 (1940).—An investigation was made of poly. in the system  $\text{H}_2\text{O}$ - $\text{NH}_4\text{PO}_4$ - $\text{NO}_3$  at 25° in acid and alk. media. Poly. of  $\text{NH}_4\text{H}_2\text{PO}_4$  increases greatly upon addn. of  $(\text{NH}_4)_2\text{HPO}_4$ , but poly. of the latter increases insignificantly upon addn. of the former. Poly. of  $(\text{NH}_4)_2\text{HPO}_4$  decreases approx. half upon addn. of  $(\text{NH}_4)_2\text{PO}_4 \cdot 3\text{H}_2\text{O}$  but the poly. of the latter upon the addn. of  $(\text{NH}_4)_2\text{HPO}_4$  at first drops to about 0.38 its former value and upon further addn. remains const. Poly. of ammonium phosphates decreases to nearly one-half upon the addn. of  $(\text{NH}_4)_2\text{SO}_4$  while poly. of the latter with the addn. of  $\text{NH}_4\text{H}_2\text{PO}_4$  increases at first to a small extent and then drops and with the addn. of  $(\text{NH}_4)_2\text{HPO}_4$  and  $(\text{NH}_4)_2\text{PO}_4 \cdot 3\text{H}_2\text{O}$  it drops to a small extent. Addn. of  $\text{NH}_3$  to a soln. satd. with  $\text{NH}_4\text{H}_2\text{PO}_4$  at first greatly increases the content of  $\text{P}_2\text{O}_5$  up to the double point of  $\text{NH}_4\text{H}_2\text{PO}_4$ - $(\text{NH}_4)_2\text{HPO}_4$  and then there is a rapid decrease in the  $\text{P}_2\text{O}_5$  content which drops nearly to zero in a strongly ammoniacal soln. Similar observations were made upon the addn. of  $\text{NH}_3$  to a soln. satd. with  $\text{NH}_4\text{H}_2\text{PO}_4$  and  $(\text{NH}_4)_2\text{SO}_4$ . B. Z. Kamich

